AIR CONDITIONING & REFRIGERATION NEWS
The Newspaper of the Industry
RESIDENTIAL — COMMERCIAL — INDUSTRIAL
May 5, 1958

Issued every Monday at
450 West Fort St., Detroit 26, Michigan
Established 1926
Member, Associated Business Publications — Member, Audit Bureau of Circulations

Subscription Price, $6 Per Year (U. S. and Canada). Foreign: $10.00 Per Year.

Vol. 84, No. 1, Serial No. 1,519

Hawaiian Get-togethers
Kick-Off Luncheon
Market Notes
Von Hamm-Young's Success
Believe It or Not
On-the-Spot Reports
Tremendous Industrial Installation

Hawaiian Get-togethers

Two luncheon get-togethers in Honolulu provided quite a bit of information about Hawaiian activities, and prospects in the refrigeration and air conditioning field. First was an intimate conversation with the following: C. R. Pope, Jr., Holst and Male, Ltd.; Robert Lozier, Air Conditioning Co. of Hawaii; Hall H. Hoxie, W. A. Ramsay Co.; C. H. Macallister, Hawaiian Electric Co., C. D. Nolan, Hawaiian Electric Co., Ltd.; L. W. Clifford, Honolulu Electrical Products Co., Ltd.; and F. H. Williams, Hawaiian Electric Co., Ltd.

Second was a big luncheon arranged by the Hawaiian Electric Co. for everyone on the islands who is connected with promoting and selling commercial and residential air conditioning.

Although commercial air conditioning is doing well here, as we shall see later, residential air conditioning is practically nil. The reason is apparent. The islands have the finest climate in the world. There are no homes with furnace installations. A few homes high on the hillsides have fireplaces, and there are occasional portable space heaters to be found. But no cooling, yet. Residential air conditioning when it comes, thereupon, will consist entirely of window type or through-the-wall units.

Kick-Off Luncheon

The Hawaiian Electric Co. believes there is a residential market for this type of air conditioner, and utilized the occasion of Dope's visit for a "kick-off luncheon." Our job was to try to help sell the idea.

That people do like air conditioning even in the mildest of climates is proved by the fact that hotels, restaurants, cocktail lounges, stores—anywhere people congregate—are air conditioned in the best of resort areas, like Hawaii and Florida.

Why, then, aren't their homes? In Hawaii the cost would be unusually low. Just the price of a window unit in the bedroom, and another in the room where cocktail parties (Hawaiians love them) are thrown.

(Continued on Page 8, Col. 1)

Air Conditioning Contractor Groups In Merger Plan?

DETROIT—The major organizations of contractors in the air conditioning field—the Mechanical Contractors Association (MCA), the National Association of Plumbing Contractors (NAPC), and possibly Refrigeration & Air Conditioning Contractors Association (RACCA) are thought to be on the verge of announcing a plan for the consolidation of these individual organizations into one major contractor group.

While no official of any of the three associations involved will comment in any way upon this possibility, it is definitely known that the subject has been discussed within each association, and in conferences between the groups.

With the annual convention of the MCA starting May 20 in Los Angeles, and the NAPC annual conclave following shortly thereafter in June, also at Los Angeles, it is considered likely that such plans as may have been developed for any such proposed merger will be announced before the conventions open.

Certain developments in the past year indicated that the groups have been drawing closer together. Not too long ago a Joint Industry Program for the Plumbing and Pipefitting

(Concluded on Page 4, Col. 5)

Home Heating-Cooling Line

Trane Details June Offering

LA CROSSE, Wis. — The Trane Co. which will enter the residential year-round air conditioning market in mid-1958, has announced details on its line of central home heating and cooling products.

The complete line is expected to be ready for shipment in June, from the new $1.5 million Trane plant currently under construction at Clarksville, Tenn.

The line will be officially

(Concluded on Page 33, Col. 2)

Michigan RACCA Contracts with UA

LANSING, Mich.—First labor contract covering all the lower peninsula of Michigan outside the Detroit area was negotiated recently between the Refrigeration & Air Conditioning Contractors Association of Michigan and the United Association of Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry.

The contract went into effect May 1, according to Ron Gar-

(Concluded on Back Page, Col. 1)

NEMA Sets Up New Section for Room Coolers

NEW YORK CITY — Formation of a new section for manufacturers of room air conditioners within the National Electrical Manufacturers Association was announced by Joseph F. Miller, NEMA's managing director.

News of this development followed a meeting called for representatives of room air conditioner manufacturers who are members of the association.

J. B. Ogden, general manager, Air Conditioning Div., Whirlpool Corp., was elected temporary chairman. He will serve until May 27 when another meeting of the section will be held at NEMA headquarters in New York City, to which non-member manufacturers of

(Concluded on Back Page, Col. 3)

Sees Commercial, Industrial Market of 3½ Million Units

Du Pont Survey Turns Up Big 'Ready-To-Buy' Segment, Reveals Inadequate Selling Job

HOT SPRINGS, Va.—A market comprised of nearly 3½ million commercial and industrial establishments awaits the sales efforts of the air conditioning industry, and the size of the immediate or "ready-to-buy" market is larger than the industry may realize.

Those are among the principal findings in the du Pont nationwide survey of the commercial and industrial air conditioning market, which W. A. Bours III, director of sales of the du Pont "Freon" Products Div., will release during the annual meeting of the Air-Conditioning & Refrigeration Institute here.

The market study is the third which du Pont has conducted on air conditioning, the others covering the markets for room air conditioners, and central residential air conditioners. All information in the survey was developed through personal interviews, and the study used a national probability sample of 16,635 commercial, industrial, and institutional organizations.

These are some of the key facts brought out in the survey:

• There is a big immediate market ready to be tapped. Based on the projections made by the market researchers, the number of establishments which indicated they expect to purchase air conditioning within the next year totaled 314,000. (If something like that actual number of establishments buy in 1958, it could mean about a 20% increase over 1957 figures).

• The biggest potential, in terms of numbers, is in retail and other commercial establishments, although the lowest market saturation is in the industrial classification. By size of establishment, in terms of number of employes, the best market is among the smaller ones, as the percentage of ownership of air conditioning was shown to increase almost directly with an increase in the number of employes.

• How apparently poor a selling job the industry has done is evidenced by the fact that of those who own air conditioning, less than 10% said that they had bought air conditioning from someone who had solicited their business, with over 70% stating that they made their purchase after "calling in someone who sells air conditioning." Another indication of the inadequate selling job is the figure which indicates that only 15% of the owners of such establishments have given any consideration to air conditioning.

• There are some large seg-

(Concluded on Page 5, Col. 1)

$10,000 Scholarship Set as Carrier Prize

SYRACUSE, N. Y. — Something new in sales incentives, a $10,000 scholarship for a complete college education, is being offered by Carrier Corp. as top prize in a national "Icemaker" sales contest. It is believed to be the first award of its kind for selling endeavor.

Russell H. Gray, vice president of Carrier's Unitary Equipment Div., announced that competition, in which the winner can name any student to receive the education award.

(Concluded on Page 33, Col. 1)

BEHIND PAGE ONE . . .

INDUSTRIAL Air Conditioning
Bruce Henderson Takes a Look at Future Factory Comfort Conditioning 20
COMMERCIAL Air Conditioning
Unique Congratulatory Ad Surprises Commercial Cooling Purchaser 13
Packaged Unit Keeps Towboat Crew At 'Peak Condition 'round the Clock' 2
RESIDENTIAL Air Conditioning
Capehart Military Housing Offers Big Market, Points Up Need for Industry To Gain Wider Public Acceptance 14
• **Air Distribution Requirements** 30
• **Technical Center** 17
• **Getting Top Dollar for Heating Service** 26

Cooling's Fine, But— You Get 'Stir Crazy'

LOS ANGELES—Want improved hearing? A smoother skin? Longer naps for children? Try air conditioning.

Some 25 Los Angeles area housewives testified that they received all these benefits in their air conditioned homes and more besides.

The ladies composed the second Lennox "Women's Forum" staged recently at the Sheraton-Town House here. John Norris, president of Lennox Industries, Inc., led the discussion.

He expressed amazement at the unusual benefits they mentioned, pleasure at the "satisfactory" operating costs they cited, and provided answers to the problems that were troubling them. Most troubles cited concerned proper air movement and differences of opinion over what temperature to hold.

One woman said she and her husband were going "stir crazy" because they hated to leave their air conditioned house.

More comments in the ladies' own colorful words start on page 18 of this issue.

UsAirco Moves Plant To Delaware, Ohio

DELAWARE, Ohio — Completion of the physical move of United States Air Conditioning Corp. from Philadelphia to its new location here has been announced by Glenn W. Way, president and chairman of the Executive Committee.

Way said production of self-

(Concluded on Page 4, Col. 1)

In Florida

UA Turns Down Locals' Merger

MIAMI, Fla. — A proposed merger of two local unions of the United Association here, one of which has a contract with Air Conditioning & Refrigerating Association of Florida, Inc., and the other being the plumbers union, failed to get the required votes in an official union election.

United Association local 725, known as the air conditioning and refrigeration local, voted

(Concluded on Back Page, Col. 2)

Reentered as second class matter October 3, 1936, at the post office at Detroit, Mich., under the Act of March 3, 1879. • Trade Mark Registered U. S. Patent Office. Copyright 1958, by Business News Publishing Co.

Air Conditioner's Hum

Attunes Towboat Crew To Lift Barge, Tote Bale

Men Kept at 'Peak Condition' on 24-Hour Duty

MINNEAPOLIS—Year-round air conditioning is a "modern design must" for Upper Mississippi Towing Corp. river towboats engaged in water transportation of bulk commodities in barge load lots throughout inland waterways, says H. M. Baskerville, Sr., president.

"Our boats operate in all types of weather and nearly continuously day and night all year long. It is important that the crew manning the vessels be constantly in peak condition to fulfill their duties in an efficient manner," Baskerville noted.

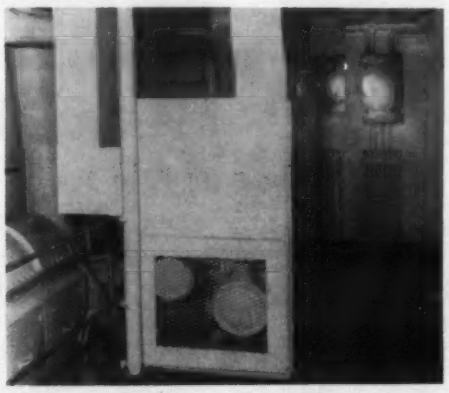
"Air conditioning was once an afterthought and if installed at all, fitted into a ship after all other machinery and services were assigned. Today, our shipbuilders give air conditioning equipment consideration in the initial design stages," he said.

"Factors considered are roll and pitch conditions during operation, corrosive effects of sea air and salt water, weight and the minimum of space available for installation of the air conditioning equipment."

Baskerville cited his firm's newest towboat, the *Laura Lee,* as a typical example of the towboat air conditioning trend. The powerful boat uses a Trane 10-ton capacity packaged system for cooling throughout the crew's living quarters, while Trane convector and "Force-Flo" heating units provide warmth during winter months.

Cool air is distributed to living areas in the summer through a compact system of ductwork.

According to The Trane Co., the *Laura Lee* is one of a dozen such boats air conditioned with the firm's equipment during the past year. The ship has a 156-ft. long welded steel hull with a beam of 50 ft. and an 11-ft. depth.



A 10-ton capacity Trane packaged air conditioner provides 78° comfort to living quarters of the Laura Lee's towboat crew.

Under One Cover

FHA's Minimum Property Standards Due Shortly

WASHINGTON, D. C.—Norman P. Mason, Federal Housing Administration Commissioner, told the Building Research Institute recently that FHA's revised minimum property standards will be published during the summer.

Instead of the present 23 separate publications, the new standards will be contained within the covers of a single book.

"In general," Mason said, "the new standards will allow builders greater flexibility and freedom in providing greater livability at lower costs."

Mason also announced that FHA will soon undertake a survey of owners of FHA-inspected homes to find out what in their opinion have been the good features and the faults and failures of these homes. He hopes this survey will suggest improvements that can be incorporated into FHA standards.

National BBB Gathers Data on Possible Standard for Heat Pump Advertising

NEW YORK CITY—Allan E. Backman, executive vice president of National Better Business Bureau, Inc. here, has told the NEWS "it would be premature to say that the bureau is working on standards for advertising heat pump air conditioners" as recently reported.

"Some questions," he said, "have been raised with the bureau as to the proper meaning of the term (heat pump). All we have been doing so far is gathering information on the subject and whether any standards or definitions are issued will depend on what develops."

An NBBB spokesman was earlier reported to have said the organization hoped in the near future to have a standard established for determining what constitutes a heat pump air conditioner and what may be advertised as such.

Air Conditioner Advertising Tied In With 'Long Hot Summer' Movie Ads

DECATUR, Ill.—"Long hot summer is coming."

That was the theme of a full page of advertisements in a local newspaper built around the movie "Long Hot Summer."

Bayless TV & Appliance was one of several Decatur merchants who tied-in with the movie ad. Bayless urged readers to purchase a 1-ton Fedders deluxe room air conditioner.

Remember the handy "Genetron" JUG-A-LUG of two years ago? Now General Chemical brings you another helpful tool...
FREE
genetron 22
GREEN LABEL
Free between June 1 and August 1 with the purchase of any cylinder of
genetron®
22
from your wholesaler!

N. J. RACCA Details UA Agreement; Retains Most Provisions of Former Pact; If Contractor Leaves Group He Must Honor Terms

NEWARK, N. J.—Here are additional details regarding the new three-year contract recently agreed to by the Refrigeration and Air Conditioning Contractors Association of New Jersey and the United Association.

As reported in the April 21 issue of the NEWS, the new agreement is similar, in almost all aspects, to the contract which has been in effect between the parties during the past year, after having been found workable and desirable.

Vacation schedules remain as previously agreed. All men employed one full year or more will receive one week vacation with full pay and all men employed for three years or more shall receive two weeks' vacation with full pay. After six months, if an employe either resigns or terminates before receiving vacation time due to him, he shall receive pro-rated pay in lieu of vacation. The time for such vacation shall be determined by mutual understanding between employer and employe.

The new agreement does not include any penalties for staggering the initial eight hour daylight working period for servicemen. Sundays and all legal holidays shall be paid for at double-time rate when work is performed.

All the essential provisions of the former agreement, not specifically changed, as mentioned above, are again included in the new three-year contract.

Should a RACCA-NJ member withdraw his membership from the contractors association he will still be bound by all the terms and conditions of the new agreement.

Also any contractor-employer hereafter joining RACCA-NJ will become party to the agreement.

In keeping with the agreement, RACCA-NJ recognizes the United Association as the sole and exclusive bargaining representative for all journeymen and apprentices in the employ of RACCA-NJ members with respect to wages, hours, and other conditions of employment.

According to the former agreement and again stipulated in the new agreement, the United Association agrees to furnish RACCA members with a sufficient number of journeymen servicemen, and apprentices, who may be desired from time to time.

NEGOTIATING COMMITTEE for the new RACCA-UA agreement. Left to right, Charles Edmond, Engineering & Refrigeration, Inc., A. G. Dietl, Dietl & Kraft, Inc., John S. Sanok, The Conditioning Co., Inc., Newark, N. J., Ingvar Monsen, president of RACCA-NJ, Monsen Refrigeration Inc., Richard L. Hughes, Electric Products Inc.; Augustus Crowley, business agent, Local 475, UA, Charles DiLeo, business agent, Local 274, Frank A. De Nike, business manager, Local 274, Owen P. Kelly, special chairman, Herb Hans, observer.

The first year apprentices start at 50% of journeyman rate and have a ninety-day qualifying period. He is allowed to work with journeymen. He is then indentured, required to attend evening apprentice school, and follow an approved program of craft training. During his second apprentice year he receives sixty-six and two-thirds of journeyman rate; the third year 75%; the fourth year 80%; and the fifth year 85% of journeyman wages.

Agreement of Trust calls for an executive manager who was not to be a representative of, or affiliated with, either RACCA or the United Association.

Funds required for operation of Joint Industry Program are provided for by stipulation—". . . each employer . . . shall pay four cents per hour worked, straight time and overtime, on all hours worked, on every employe covered . . ."

Under terms of the Trust, as noted above, an executive manager was appointed. He is Paul B. Hughes, Closter, N. J., who supervises the collections and reports, correlates and administers to Joint Activity councils.

Representing RACCA-NJ on the Joint Committees are: Charles Edmond (past president, RACCA-NJ) of Engineering & Refrigeration Inc., Jersey City; Richard L. Hughes, Electric Products Inc., Jersey City; John S. Sanok (past president, RACCA-NJ), Conditioning Co., Newark; Ingvar Monsen (president, RACCA-NJ), Monsen Refrigeration Corp., Bloomfield; Al G. Dietl (past president, RACCA-NJ, and currently a director of RACCA-National), Dietl & Kraft Inc., Newark.

Representing United Association are: Robert Buxbaum, general organizer; Owen P. Kelly, special representative; Frank A. DeNike, business manager, Local 274; Augustus J. Crowley, business agent, Local 475; Patrick J. Doyle, business manager, Local 432.

ASHAE Announces Jan. Heating-Cooling Show

NEW YORK CITY — Announcement has been made that the 14th International Heating & Air Conditioning Exposition will be held in Convention Hall, Philadelphia, Jan. 26-29, 1959, under the auspices of the American Society of Heating & Air-Conditioning Engineers and in conjunction with its annual meeting.

Exhibitors' interest is reflected by the engagement of 350 display spaces before the end of March, according to E. K. Stevens, the exposition manager. As heretofore, the management will be staffed by the International Exposition Co., with permanent headquarters at 480 Lexington Ave., New York 17, N. Y.

CADDY-WRENCH

The all-purpose cylinder wrench and carrying tool!

It's a carrying tool! Fits bonnet hole on small "Genetron" cylinders
It's a wrench!
Fits "Genetron" cylinder valve stems and valve outlet caps—also fits stems of compressor service valves, soldering gas cylinders, etc.
Comfortable finger grips
1/4" tool steel, smooth plated finish
GENETRON
SUPER-DRY REFRIGERANTS

Here's a tool you've never seen before—specially designed for the service engineer by General Chemical. It's a combination carrying tool and wrench. We call it a "Caddy-Wrench." And, like the "Jug-a-Lug" which we created for you two years ago, this is a tool that's really helpful, really useful.

Many uses! As a carrying tool, the "Caddy-Wrench" makes it easy to carry small size cylinders by the hood. *No more cuts, strains and finger injuries!* And as a wrench, it's designed to fit "Genetron" cylinder valve stems and valve outlet caps, also stems of compressor service valves, soldering gas cylinders, etc. *No more adjusting wrenches or using different tools, once you have this all-purpose cylinder wrench and carrying tool!* Made of quarter-inch solid tool steel, it's strong, sturdy, won't crack, bend or break. And the smooth plated finish makes it a pleasure to use. Be sure you get *your* "Caddy-Wrench"! *Here's the only way to get one:*

SEE YOUR WHOLESALER! When you buy any size cylinder of "Genetron" 22—*between June 1 and August 1 only*—your wholesaler will be glad to give you your "Caddy-Wrench" . . . *free!*

GENERAL CHEMICAL DIVISION
40 Rector Street, New York 6, N.Y.

Allied Chemical

UsAirco Moves Plant--

(Concluded from Page 1, Col. 4)

contained central station air conditioners for commercial and industrial application — known as RK units—has started and several units have been delivered.

Manufacture of two additional series is scheduled for May, Way said.

"The Engineering Department will be in its new quarters early in May," he stated. "A new, modern test laboratory equipped with all the newest devices and instrumentation is under construction."

Way announced that Tom Tisdel will manage the Service Department and that George Kucera will remain in charge of the UsAirco Accounting Department.

"William Moiselle will administer the field activities and supervise manufacturer's representative activities and relationships," he said. "Bob McLain is in complete charge of all internal sales operations for the company."

The Hughes-Keenan Div. (formerly Hughes-Keenan Corp., which was merged into U. S. Air Conditioning last June) continues the manufacture of the "Roustabout" line of wheel type motive cranes as well as the "Vanette" line of forward control parcel delivery bodies for motor trucks which are distributed through motor truck dealers throughout the U.S.A. by Universal Sales, Inc., a wholly-owned subsidiary.

The Floral City Heating Div. of Monroe, Mich., is introducing a new and additional line of gas-fired heaters for residential use.

Management Group To Meet May 19-20

NEW YORK CITY — Chief executives of several large industrial organizations will report to more than 1,000 top business executives what their companies are doing to foster economic growth and prosperity at the May 19-20 American Management Association special Economic Mobilization Conference in the Hotel Astor here.

Robert S. Ingersoll, president, Borg-Warner Corp.; Cloud Wampler, chairman, Carrier Corp.; Ralph J. Cordiner, chairman, General Electric Co.; and Elisha Gray II, president, Whirlpool Corp. are listed among the speakers.

They will describe major commitments of money and manpower by their companies.

Compressor Body Shipments During January Estimated at 315,318 by ARI

WASHINGTON, D. C.—Manufacturers' shipments during January 1958 of compressor bodies used in air conditioning and refrigeration equipment were about 25% under similar shipments in January 1957, it was reported by Geo. S. Jones, Jr., managing director of the Air-Conditioning & Refrigeration Institute.

The figures, which do not include compressors used in household refrigerators, were compiled from reports made to ARI by manufacturers whose output is estimated to be in excess of 95% of the industry, he said.

Actual shipments for the month totaled 315,318 units, compared with 399,131 in January of the preceding year.

Compressor bodies designed for use in automotive air conditioning accounted for 39,324 of the January 1958 shipments, a drop of about 9,000 units from January 1957 shipments of 48,350.

Substantial gains were shown in shipments of 1½ and 2-hp. compressor bodies, and smaller ones by ⅓ and ½-hp. units, but most other categories showed declines from the January 1957 shipment figures.

Figures for compressor bodies, broken down by categories, together with the names of reporting companies follow:

MANUFACTURERS' SHIPMENTS OF COMPRESSOR BODIES

Produced by Reporting Companies (Except for household refrigerators)

Horsepower*	Shipments Including Exports January, 1958
⅙ & under	78,295
¼	
⅓	15,091
½	9,099
¾	4,700
1	70,027
1½	40,413
2	41,559
3	7,782
5	4,317
7½	2,605
10	855
15	281
20	150
25	133
30 & over	562
Total	**275,869**
For Ammonia Refrigerant—Total	125
For Automotive Air Conditioning—Total	39,324
Grand Total	**315,318**

*For all refrigerants **except** ammonia (excluding units for automotive air conditioning).

NOTE: In order to avoid disclosing the figures of individual companies, data for two or more sizes of some units are combined on this summary.

Reporting companies: Airtemp Div., Chrysler Corp.; Bendix-Westinghouse Automotive Airbrake Co.; Brunner Div., The Dunham-Bush, Inc.; Carrier Corp.; Copeland Refrigeration Corp.; Curtis Mfg. Co., Refrigeration Div.; Frick Co., Inc.; Frigidaire Div., General Motors Corp.; General Electric Co.; Kelvinator Div., American Motors Corp.; Lehigh, Inc.; Tecumseh Products Co.; Trane Co., The; Vilter Mfg. Co.; Westinghouse Electric Corp.; Worthington Corp.; York Div., Borg-Warner Corp.

This summary includes all compressor bodies shipped by the reporting companies **regardless** of whether they were shipped separately or incorporated into a condensing unit or unitary end-use product (such as a room air conditioner, display case, freezer, or commercial refrigerator). Shipments for export are included. Shipments for household refrigerators are **not** included.

In order to avoid duplication of reporting, shipment figures were requested only from companies that assembled the machined compressor casting with the components necessary to make a complete compressor or motor-compressor assembly.

Turn Down Merger

(Concluded from Page 1, Col. 2)

Industry was developed by MCA, NAPC, and the United Association (AFL). At the annual RACCA convention late last year, the president of MCA and NAPC were in attendance, the first time this ever occurred.

The obvious reason for any such merger would apparently be a desire to present a stronger and united front on such matters as labor relations, legislative matters, and apprentice training.

If such a merger comes about, it is felt that the individual groups would retain their identity and autonomy as "divisions" of the over-all organization.

upgrade your unit now with

Send for FREE data*

Du-Air 2-VOLUME AIR DELIVERY

you can design for Ideal Heating and Cooling with a MORRISON Damper Control Blower

• Permits Ideal Heating • Eliminates Pulley Change • Permits Ideal Cooling • Eliminates Motor Operated Dampers • Eliminates two speed fans, fans in series and fans operating individually

Pat. Pend.

Deluxe model shown.
Simplified models available.

ADAPTABLE TO PRESENT SYSTEMS!

*YES . . . please send me typical installation diagrams of the MORRISON DAMPER CONTROL BLOWER

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____

STATE _____

MORRISON PRODUCTS, INC.
16816 Waterloo Road • Cleveland 10, Ohio

Du Pont Cooling Survey--

(Concluded from Page 1, Col. 5)

ments of the market, which are apparently quite neglected. These include establishments which are only partially air conditioned, and those which are wholly air conditioned, but in which the equipment is approaching obsolescence.

• Those who rent commercial establishments, particularly retail establishments, form a greater market (in actual number) than those who own such places, the survey indicated, this going contrary to some accepted thinking in the industry.

Need Big Selling Job

That a really big selling job remains to be done by the industry is pointed up by a survey finding indicating that 85% of non-owners (projected by the survey figures to mean a total of 2,955,000 establishments) have never even considered air conditioning.

'Smaller Commercial, Industrial Places Is Biggest Market'

Main problem—and the biggest market—seems to be in the smaller commercial and industrial establishment. Only 27% of the establishments with 7 or less employes have any air conditioning, the survey figures indicate and fewer than 1 out of 4 non-owners in this size category have even considered air conditioning, it was stated.

'Make Those Calls'

Another survey figure which spotlights the extent of the selling job is the one which says that there are more firms who have never been called on or solicited for the purpose of selling them air conditioning (2,767,000) than the combination of present owners and non-owners who have been solicited (2,295,000).

The main objections to purchase of air conditioning by non-owners would certainly seem to be susceptible to selling effort. The leading objection—can't afford it—in the absence of facts or true knowledge of costs could be more a state of mind than a valid reason.

The leading objection among renters—the fact that they rent or lease their building—is difficult to accept because ⅔ of present air conditioned establishments are rented premises.

Third principal objection—don't need it—would seem, in most cases, to be a rationalization which might be overcome by a better understanding of the benefits.

'Replacement Market'

That the replacement market would seem to merit special attention is another major point developed in the survey. With only about 2% of present air conditioned establishments having plans to replace any of their equipment, it is apparent this phase of the market has not been developed.

Additions to present installations would also seem to warrant investigation. With survey figures indicating that 40% of air conditioned establishments are partially air conditioned, only 5% have plans to add to their systems.

69% Not Cooled

The extent of air conditioning in all commercial and industrial establishments, including those with "partial" air conditioning, is 31% of the total number of such establishments, the survey states. The over-all figure breaks down like this:

	% of total
Wholly air conditioned	22
Partially air conditioned	9
Not air conditioned	69

A further breakdown (see table) shows that 20% of retail establishments are wholly air conditioned, and 7% partially air conditioned; 29% of other commercial establishments have been wholly air conditioned, and 11% partially so; and 12% of industrial establishments have been wholly air conditioned, and 19% have some air conditioning.

If the figure for industrial air conditioning seems high, in view of other previous industry estimates which put the saturation on industrial air conditioning somewhere around 2%, it is pointed out that many of the industrial establishments covered were quite small, and that many such places are completely air conditioned.

'Partial' Cooling Can Mean One Room Unit

Also, it should be kept in mind that the term "partially air conditioned" can mean the installation of a single room unit installed in an executive office, first aid room, or employe lunch room.

Among the various types of retail establishments, the highest market saturation is in eating and drinking establishments (28% wholly air conditioned, 8% partially), as compared with retail food and drug stores (20% wholly, 4% partially), and personnel business and repair services (16% wholly, 9% partially).

Among other types of retail establishments the greatest market saturation was in offices and office buildings, and the lowest in institutions.

In its tabulation of the extent

(Continued on next page)

PRE-ATTRITED. At Davison, PA 400® Silica Gel is Pre-Attrited to give superior non-dusting qualities. First it's beaten up; then it's polished. All sharp edges and dust disappear. What's left is hard and tough . . . won't break down in drier service. So ask for the drier filled with Pre-Attrited PA 400. Both you and your customers will be happy you did. See your distributor tomorrow.

DAVISON
CHEMICAL COMPANY
Division of W. R. Grace & Co.
Baltimore 3, Maryland

Survey--

(Continued from preceding page)

of air conditioning in commercial and industrial establishments by geographic area, the south came out well in front, as the following table shows:

	North-east	North Central	So.	West
	—Per Cent of Total—			
Wholly air cond.	15	21	30	26
Partially air cond.	8	10	9	7
Not air cond.	77	69	61	67

A comparable tabulation based on temperature zones showed the "hot" zone out in front in extent of air conditioning use, with 34% of all establishments wholly air conditioned, and 10% partially air conditioned, this surpassing the "torrid" zone with 26% wholly, and 13% partially air conditioned. One explanation of this is the greater use of evaporative or non-mechanically refrigerated type air conditioners in the "torrid" zone areas, which embrace many of the arid desert sections.

'Smaller Places Unexplored Market'

The breakdown of the saturation of the market by size of the commercial or industrial establishment (in terms of the number of employes) shows definitely that the smaller establishments are definitely the "unexplored" market.

Of those establishments with 250 employes and over, 65% have some air conditioning, according to the survey. Of those with from 50 to 249 employes, 61% have some air conditioning, and of those with 8 to 49 employes, 45% have some air conditioning. But of those establishments with no more than 7 employes, only 27% have air conditioning of some kind.

'Most Cooling Owners Rent'

How air conditioning owners compare as to whether they own or rent their business establishment was projected by the survey as follows (expressed in actual numbers — thousands).

Type of Establishment	Own Bldg.	Rent Bldg.
Retail	294	531
Other Com'l	254	427
Industrial	45	34

Type of System

Compilations in the survey on the type of system (room, package, or other) which are predominant among commercial and industrial establishments are rather complex (and will be covered more comprehensively in later issues).

However, the survey provides a major over-all projection on the question of "How does the total installed tonnage of air conditioning in commercial and industrial establishments vary by type of system" with the following tabulation (expressed in thousands of tons):

	Type of System		
Type	Room	Pkg.	Other
Retail	684	2,538	4,624
Other Com'l	1,187	1,199	5,923
Industrial	90	225	275
Total	**1,961**	**3,962**	**10,822**

The average tonnage of systems installed in retail establishments is in the area of 9.5 tons, according to the survey's projections. In industrial establishments the average installation is 7.5 tons, indicating the preponderance of smaller establishments that have cooling, and also the great number of partial installations in the industrial category.

Extent of Air Conditioning In Commercial and Industrial Establishments—By Type of Establishment

Establishments—By Type of Establishment
(Expressed in % of total and in actual numbers (thousands)

	Retail		Other Com'l.		Industrial	
	% of Total	Actual No. of Estab.	% of Total	Actual No. of Estab.	% of Total	Actual No. of Estab.
Not air cond.	73	2,254	60	1,043	69	180
Partially air cond. .	7	223	11	179	19	48
Wholly air cond. ...	20	602	29	502	12	31

Room and package units now account for a larger percentage of the commercial and industrial installations than formerly, according to figures accumulated in the survey. In the 1946-1949 period package units accounted for only 38% of the total. By 1951 this had climbed to 51%, and by 1953 to 66%, remaining at about that figure (in some later years slightly higher) ever since.

Only 10% Solicited

Indicative of the relatively poor selling job done on this market is the fact that when owners of retail establishments who had installed air conditioning were asked as to whether they had been solicited to buy, or had called insomeone, over 70% of them stated that they had "called in someone who sells air conditioning."

Less than 10% said that they had bought air conditioning from someone who had solicited their business, and the balance gave a variety of answers or couldn't recall the circumstances of the purchase.

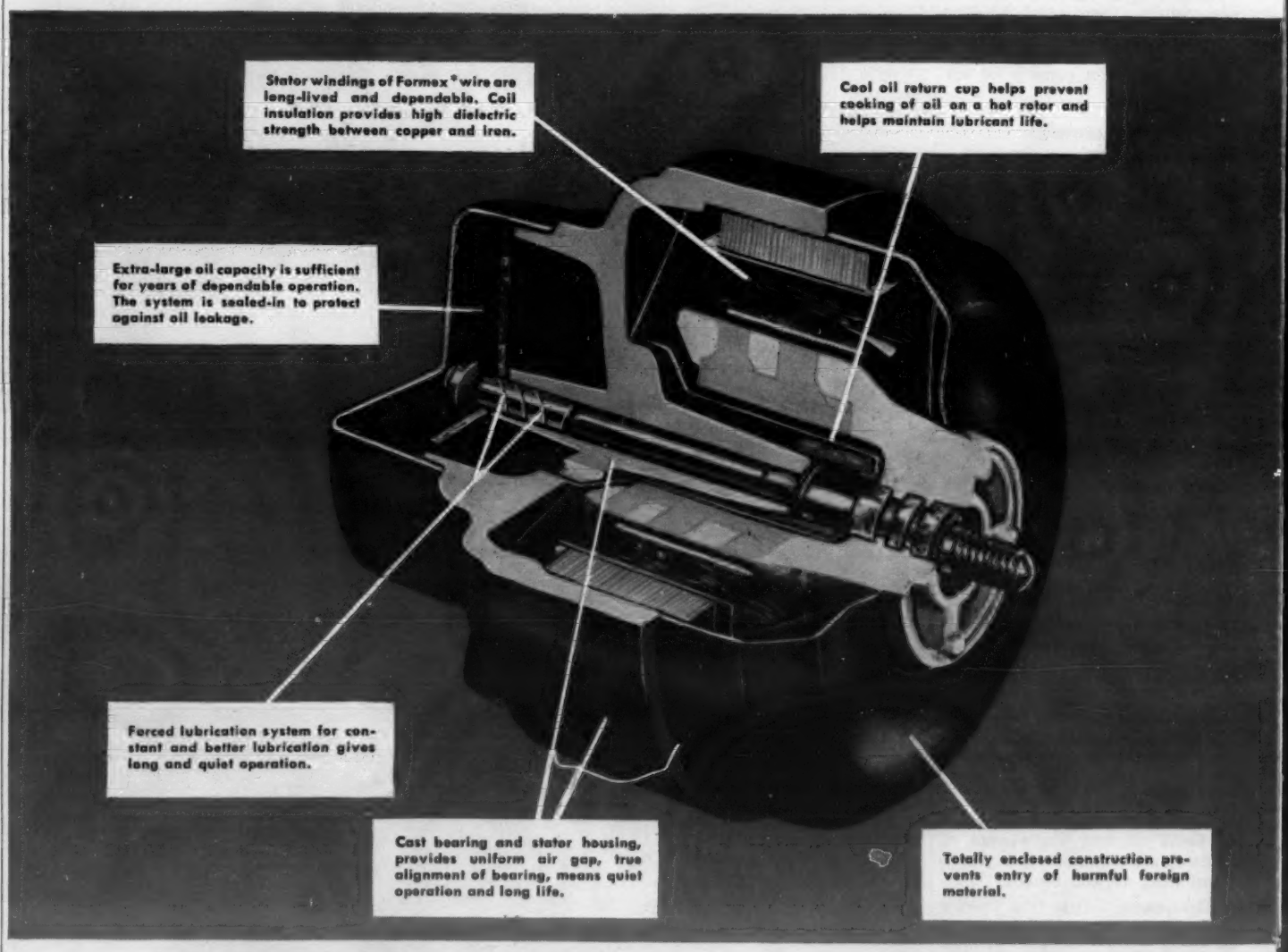
'Only 4% of Owners Plan Replacement'

That no real replacement market has yet been developed was pointed up by the survey's revelation that only 4% of owners with equipment installed in 1945 and before have plans to

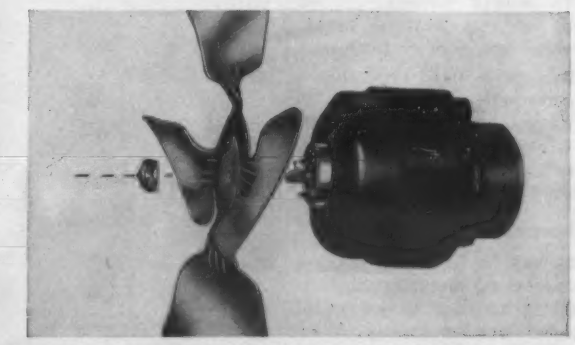
(Concluded on next page)

From General Electric . . .

THE ULTIMATE IN FAN


Stator windings of Formex* wire are long-lived and dependable. Coil insulation provides high dielectric strength between copper and iron.
Cool oil return cup helps prevent cooking of oil on a hot rotor and helps maintain lubricant life.
Extra-large oil capacity is sufficient for years of dependable operation. The system is sealed-in to protect against oil leakage.
Forced lubrication system for constant and better lubrication gives long and quiet operation.
Cast bearing and stator housing, provides uniform air gap, true alignment of bearing, means quiet operation and long life.
Totally enclosed construction prevents entry of harmful foreign material.

STORAGE FOR TRIPLED OIL SUPPLY is provided in a new design of oil storage wicks. New oil has an oxidation life several times that of best oil previously used.



BUILT-IN-HUB AND SPECIAL SHAFT MOUNTING THREADS permit the use of simple, hubless, low-cost fans—saves you money on motor and fan combination.

(Concluded from preceding page)

replace. And the figure was down to 1% in some instances for installations made in years after 1946.

"Air conditioning engineer or contractor" topped all other categories by a considerable margin in the answer to the question "who installed air conditioning in commercial and industrial establishments," constituting about one-third of the total. "Electric appliance dealer" was the second largest category named, most of these being installers of room units. Plumbing and heating contractors were named by 7% of the purchasers, warm air heating equipment dealers by 3%, and sheet metal contractors by 3%.

"Comfort of customers" or "comfort of employes" were by far the biggest reasons for installing air conditioning given by owners who had installed air conditioning, or by those who had rented air conditioned space. Satisfaction with air conditioning was high, with 87% stating that they felt the system that was installed had accomplished the purpose very well.

'Didn't Cool Enough' Was Chief Gripe

Among those who weren't completely satisfied, the principal complaint was (by over one-third) "didn't cool enough." Other major complaints were "unit is too small" and "needs a lot of repairs."

The extent to which non-owners of systems have considered air conditioning shows how poor the selling effort apparently has been. Only 15% of the owners of commercial and industrial establishments are giving any consideration to air conditioning.

Not Many Non-Owners Have Been Called On

All non-owners were asked if anyone had ever called on them for the purpose of selling air conditioning, and this is what they said:

Type of Establishment	Salesmen Have Called %
Retail Food & Drug	30
Eating and Drinking	26
Personal Business and Repair	15
All Other Retail	24
Offices in Office Bldgs.	20
Hotels and Motels	24
Institutional	12
All Other Public Occupancy	14
Industrial	19

Where salesmen have called, it has served to stimulate interest, upping the "have considered air conditioning" to 28% as compared with 12% for those owners who hadn't been called upon.

The survey revealed a surprisingly large "ready-to-buy" market among those who reported they were considering air conditioning. Close to 50% of those saying they were considering air conditioning declared they would probably do it within the next year, and a good percentage of that number were already getting bids.

A more detailed analysis of the findings of the du Pont survey of the commercial and industrial air conditioning market will be published in later issues of the NEWS. This survey information should prove of great benefit to all those who are active in the field of merchandising air conditioning equipment.

MOTOR DEPENDABILITY

For use when customer satisfaction with your products may depend on extra dependability of the fan motor

The best testimony to the quality of this motor is that it has stood the test of time—for 21 years it has set the standard for dependability. General Electric now offers a modified version that lasts even *longer*, provides *extra*-long service. Here's the story:

Extra-long-life models (both 4- and 6-pole) have been developed for applications such as home freezer systems and condenser cooling fans where low fan and air noise, in addition to extra dependability, is desirable. The extra-long-life features of this General Electric motor include a new oil storage wick system with tripled oil capacity, and a new oil with oxidation life several times that of the best oil previously used.

Quality construction features, such as General Electric's oil retention system and one piece, cast-iron frame help make these fan motors quiet and more dependable in operation.

Combine these construction features with extra safety factors and increased oil supply and you see why you'll enjoy greater dependability and customer satisfaction when you use the General Electric fan motor with its projected extra-long life. It's available at only a modest price increase over the standard G-E shaded-pole fan motor of this size.

An example of the long life and dependability of a General Electric unit-bearing fan motor is the story of the motor pictured below. In 1937 that motor was taken from the production line and placed on life tests in the General Electric Laboratory. Nineteen years, six months, and two days later it failed. Knowledge gained from this and many other life tests have all contributed to General Electric's progress in making motors better and better.

Like more information on this G-E fan motor? Fill out and mail the coupon below, or contact your nearby G-E Apparatus Sales Office.

*Registered trademark of General Electric Co.

Progress Is Our Most Important Product

GENERAL ELECTRIC

FOR A COPY OF THE FREE BULLETIN, GEA-6134, covering 1½ watts through ½ hp ratings, mail this coupon to Section B632-13, General Electric Company, Schenectady 5, N. Y.

NAME _____ TITLE _____

ADDRESS _____

COMPANY _____

CITY _____ STATE _____

Mueller Climatrol Ups H. P. Mueller, Jr.

MILWAUKEE—Appointment of H. P. Mueller, Jr. as executive vice president of Mueller Climatrol, a division of Worthington Corp., has been announced by H. P. Mueller, Sr., Mueller Climatrol president.

H. P. MUELLER, JR.

The new executive vice president is the fourth generation to direct operational management of the 100-year-old firm.

President H. P. Mueller, Sr. also announced three other executive appointments.

Curt Hoerig, formerly manager of manufacturing, was named vice president-manufacturing. Chester Birch was named treasurer, a position he will hold along with his current position as controller. William S. Malloy, personnel manager for Mueller Climatrol, has been appointed to an additional post of division secretary.

Glen Alden-List

Postpone Merger OK

NEW YORK CITY—Put off for another period is the proposed merger between Glen Alden Corp., parent company of Mathes Co., and List Industries Corp. here.

Shareholder meetings April 25 were recessed to May 9 to give the courts a chance to hand down decisions on suits filed by minority GA shareholders seeking to prevent the acquisition by that firm of List's assets.

On April 11 GA holders approved the consolidation but List stockholders postponed a vote. When List met the meeting was recessed again because of "Glen Alden problems."

Several GA holders have petitioned the courts to block the consolidation on the grounds the surviving company would be dominated by List shareholders.

Under the plan, List shareholders would hold 76.5% of the new company's (to be called List Alden Corp.) outstanding stock with GA holders retaining the remaining 23.5% excluding shares held by the corporation and Gera Corp., currently a List subsidiary.

AROUND THE WORLD IN 50 DAYS

"Inside Dope" by GEORGE F. TAUBENECK

(Continued from Page 1, Col. 1)

Also a larger through-the-wall package job would be relatively inexpensive here. All Hawaiian homes have single wall construction.

Cooling is only one benefit of home air conditioning here, of course. Hawaii has insects, including moths. It has hay fever and other allergies. And the traditional open windows here let in a lot of silt, which runs up cleaning bills. (If you close the windows, the humidity gets rough.)

Residential air conditioning via room units installed at low cost should have a great future here. And for the first time, Honolulu distributors intend to go after it this year.

Following are those who attended the kick-off luncheon:

Honolulu Electrical Products Co., Ltd.—Paul H. Anderson, Keith M. Bowen, A. W. Broiles, L. W. Clifford, H. E. Silvernail, and Herman A. Wilson.

Air Conditioning & Refrigeration Supply Co.—S. J. Bauman; **Mechanical Equipment Supply Co.**—Karl A. Bowman, Herbert Lau, and Lincoln R. Scafe, Jr.

Hawaiian Electric Co., Ltd.—Mrs. Erma Meeks Boyen, J. W. Brendlinger, H. Heinrich, M. H. McAllister, Virgil A. Nahl, C. E. Nolan, Stanley J. Skuk, and Francis H. Williams.

Pacific Marine & Supply Co.—W. R. Bradshaw, Sueo Hayashida, Fred Loui, and Alfred Yee; **The Cody Co.**—L. Chetaud, and Max Cody.

Dearborn Chemical Co.—Stephen R. Benchwick and Rollin J. Fryer; **Heide & Cooke, Ltd.**—Norman Baxter and George J. Scheuerman; **The Von Hamm-Young Co., Ltd.**—Roy R. Becker and John M. Jorgensen.

Air Conditioning Co. of Hawaii—Van O. Darrow, Stanley Tom, Robert Lozier, Stanley Smith, and Joe Y. Tanaka; **Ramsay & Co.**—David G. Conant, F. C. Stroh, Y. Yamada, Hall H. Hoxie, and George A. Rinker.

Theo. H. Davies & Co., Ltd.—N. H. Buston, George M. Wheelwright, and Shizuo Ogawa; **Oahu Sales Co.**—Robert S. Nakata; **Kilsby Refrigeration Co.**—Herbert Stielau.

Nylen Bros. & Co., Ltd.—W. L. Nylen, Jr., W. L. Nylen, Sr., and J. H. Fernie; **Easy Appliance Co.**—Robert Hinokuma, J. M. Raleigh, and Osamu Fukeda; **Holst & Male, Inc.**—P. F. Davis, Bob Corgan, H. Frank Haffner, and C. R. Pope.

P. S. Pell Co., Ltd.—J. Wm. McGee and W. E. Zerbe; **Amana Hawaii, Ltd.**—Jacob C. Hood, Jr.; **Amana Hawaii, Ltd.**—Drury Malone; **Sears Roebuck & Co.**—Melvin Dang; **Kaneda Appliance Service**—C. Kaneda.

Montgomery & Kohloss—Fred Kohloss; **Electrical Distributors, Ltd.**—Charles Koseki and G. G. Geoffery; **Berebeth Corp.**—Joseph Macario, Jr. and Gary H. Matsuwaki; **Harry Z. Colvin Co.**—Herbert Leech; **Chemical Exhaust Fire Protection, Ltd.**—Frank F. Scruggs and Robert T. Thompson.

Also present were: Jack Benson, Economic Planning & Coordinating Authority; Buck Gregory, Home Builders Assn. of Hawaii; Don Over, Builders Report; Shigeo Soga, Harry Tomita, Hawaii Times; Marshall Tate, Honolulu Star Bulletin; and Sanford Weintraub, Honolulu Advertiser.

Market Notes

Although it's "naturally air conditioned," and food preservation is no real problem, the Territory of Hawaii is a good market for our industry's products.

The Hawaiian Electric Co. gave us the following statistical information. During 1957, imports of our industry's products totaled:

7,500	household refrigerators.
2,000	home freezers.
1,450	room air conditioners (residential and commercial).
450	water coolers.
350	commercial package air conditioners.
200	refrigerated display cases.
75	reach-in refrigerators.
50	ice makers.

Von Hamm-Young's Success

No doubt the leading importer here is the Von Hamm-Young Co., which sells, installs, and services Frigidaire household and commercial units — plus Tyler, Frick, and Marley commercial and industrial products.

Last year the Von Hamm-Young Co. sold:

	Units
Household Refrigerators	2,000
Window Air Conditioners	71
Commercial Air Cooled 2 hp. to 7½ hp.	24
Commercial Water Cooled 3 hp. to 15 hp.	28
Water Coolers	34
Ice Cubers	22
Reach-Ins, Beer Coolers & Display Cases	30
Jamison Cold Storage Doors	22
Cooling Towers	9

This firm anticipates an increase in its 1958 business.

Principal problem it faces is a high humidity factor in "the Islands." For example, often a compressor must be re-sized from ¼ to ⅓ to take the extra humidity load.

Believe It or Not

A humorous anecdote is offered by Jerbert W. Stielau, general manager of Kilsby Refrigeration Co. in Honolulu.

In that "perfect" climate one day recently rain poured down at the rate of 18 in. in 24 hours.

Kilsby had sold a Kelvinator ice cream cabinet to local Reef hotel. After the downpour, the cabinet was found floating around the basement of the hotel "like a raft in a storm."

Amazing thing was—the ice cream remained hard and was usable despite its flotation!

On-the-Spot Reports

The Air Conditioning Co. of Hawaii maintains complete sales, installation, and service facilities for Carrier and Recold.

Quantity of units sold by this firm last year approximately ran as follows:

Carrier — 500.

Recold — 100.

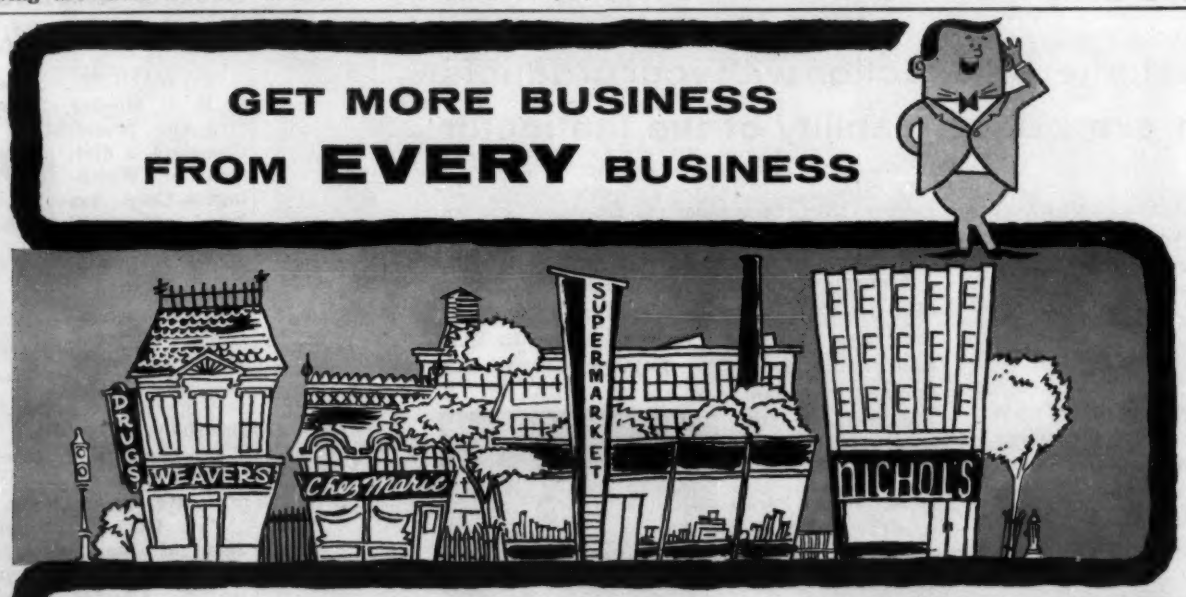
"It is our estimate that our business will decrease slightly in 1958. We have budgeted for about 10% less than 1957. Reasons for this forecast," advises General Manager Van Darrow, "in spite of a healthy local growth condition, are:

"The threat of a long sugar strike.

"The mainland recession."

(Concluded on next page)

GET MORE BUSINESS
FROM EVERY BUSINESS



with GENERAL ELECTRIC'S
Complete Air Conditioning Line

Stores, offices, office buildings, factories—large buildings and small ones—old buildings and new ones! Every business is a prospect for General Electric Commercial and Industrial Air Conditioning because the G.E. line is complete—and flexible.

G.E. Zone-by-Zone Concept Gives You Big Sales Advantages

General Electric's Zone-by-Zone concept puts you way ahead in selling points over field-assembled systems. *Planning is simplified*—no need for equipment rooms—minimum need for fittings and piping—no long duct runs—maximum saving in floor space. *Economies are substantial*—no major alterations or serious interruption to business during installation—no shutdown of entire system for maintenance, units are individually serviced—no heavy initial outlay—financing to meet individual budgets.

Chart Your Progress With G.E.'s Blueprint For Leadership

A complete line of quality products is only the beginning! General Electric's BLUEPRINT FOR LEADERSHIP Plan gives you much more! Attractive financing plans—for you—for your customers! A course in selling—national advertising and promotion—guided local advertising and promotion—plus the selling power of the General Electric name. Everything it takes to assure the leadership position for General Electric dealers. Why not plan your future with G.E.? Contact your nearest General Electric distributor—you'll find him listed in the *yellow pages* of your telephone directory...or mail coupon today. General Electric Company, Air Conditioning Department, 5 Lawrence Street, Bloomfield, N. J.

Progress Is Our Most Important Product

GENERAL ELECTRIC

In Canada, Canadian General Electric Co., Ltd., Montreal

AIR-COOLED CEILING-MOUNTED SPLIT SYSTEMS. Remote condensing unit may be placed anywhere, indoors or outdoors. Capacities 3 to 10 tons.

SELF-CONTAINED CEILING-MOUNTED UNITS—Air- and water-cooled 3 to 7½ tons.

FLOOR-MOUNTED UNITS—Water-cooled, self-contained 3 to 30 tons—air-cooled split systems 10 to 20 tons.

Heating coils may be added. All units covered by General Electric's 5-year warranty on sealed motor-compressor.

General Electric Company ACD7
Air Conditioning Dept.
5 Lawrence Street, Bloomfield, N. J.
I am interested in signing up with General Electric so that I can benefit from G.E.'s Blueprint for Leadership Plan.

Name_____
Firm_____
Address_____
City_____ Zone____ State_____

(Concluded from preceding page)

J. W. Podmore & Sons, Ltd., of Honolulu does no installation or service work.

This outfit is a wholesale distributor for all lines of refrigeration supplies and accessories, and carries stocks of components comparable to anything this side of Chicago, Detroit, or New York City.

Being a long way from sources of supply, Podmore must inventory "stock" which sometimes is quite slow in turnover. A Hawaiian serviceman cannot wait three weeks to get something when he needs it now.

Full lines of Gates belts, Chase Brass & Copper fittings, Wagner and Redmond motors, Ranco, Maurey pulleys, and just about everything else that goes into refrigeration installations—including compressors from Vilter, and coils from Russell in Los Angeles—are inventoried heavily by this concern as a result.

"We have rugged competition, not only from local sources," reveals Harold Podmore, rather disillusionedly.

"Every mainland house seems to send a tourist down here who calls on three people then charges it up to advertising expense.

"Our prices are pretty much at parity with mainland prices, nevertheless. We absorb all freight and handling cost (which is considerable) and as far as possible, stick to factory resale lists.

"This discourages foreign competition, but makes the going rather tough at times when U. S. quote tourists unquote muddy the waters."

Editor's Note: "Inside Dope" peddled nothing here. Just spent money.

Tremendous Industrial Installation

Most noteworthy refrigeration job in "the Islands" is in the industrial category. Some time ago the Dole Hawaiian Pineapple Co. plunged into the frozen juice concentrate field.

It did so after completing a $1,000,000 freezer plant. Said huge refrigeration installation also enabled this biggest Hawaiian producer to boost substantially its output of frozen pineapple chunks, which previously had been canned entirely.

It is a "plant within a plant," having been built in an existing warehouse—with storage tanks and evaporator equipment located outside on the 57½-acre Dole cannery site.

Success of this venture is indicated by the fact that last year Dole installed additional refrigeration equipment so as to double its "frozen fresh" export capacity.

Another feature is that this "huge refrigerator" is used around-the-clock to process two different products.

Let's back up a bit to explain that. Pineapple canning—solid pack and single strength juice—is an all-year operation. The June-September period ordinarily is the peak freezing season. During the remainder of the year average daily running time is about six hours.

This was one of several factors involved in the continuous refrigerated flow system for juice-concentrating which Carrier engineers developed.

Dole's plant receives raw pineapples, partially concentrates them, and stores the juice for six hours.

Then, in an 18-hour period, it freezes and cans.

A conveyor moves canned concentrated juice to the freezing tunnel, which is 86 ft. long and 16 ft. wide.

This tunnel is maintained at 40° F. It is equipped with Carrier type 15T9-289 brine spray cold diffusers.

Here's a run-down on other refrigeration equipment in this Dole plant:

The cold storage warehouse is served by a first-stage Fuller model A-50 compressor with a 25-hp. motor. Second-stage compressor is powered by a Carrier model 909 evaporative condenser.

Freezing tunnel includes two first-stage rotary compressors with 60-hp. motors. Cold wall storage and blending tanks, together with the freezing tunnel (second stage) are serviced by three Carrier model 5J61 compressors with 150-hp. motors.

All refrigeration motors are General Electric squirrel-cage induction-type units. Main ammonia condenser consists of two vertical single-pass shell-and-tube Vogt units.

Refrigeration people here are mighty proud of this enormous industrial installation, as well they should be.

Revised Itinerary for George F. Taubeneck

Below is the latest schedule for a portion of "Inside Dope's" trip around the World. It covers his plans from Sidney to Beirut.

Leave Sydney via BOAC	Flight 713	May 10	3:30 p.m.
Arrive Singapore	(Raffles hotel)	May 11	5:50 a.m.
Leave Singapore, BOAC	Flight 705	May 14	1:30 p.m.
Arrive Bangkok	(Erawan hotel)	May 14	4:20 p.m.
Leave Bangkok, QANTAS	Flight 541	May 16	11:30 a.m.
Arrive Karachi		May 16	7:45 p.m.
Leave Karachi, BOAC	Flight 709	May 17	9:20 p.m.
Arrive Beirut		May 18	1:30 a.m.

NEW SAFE FAST VAPCO DEGREASING SOLVENT

INSTANTLY DISSOLVES GREASE, GRIME, OIL, WAXES, TARS.

Non corrosive — digs deep — cleans completely without residue or fire hazards. Cleans without dismantling or "dunking." Carry it in your tool box for on-the-job use.

NO "CARBON TET"

Ideal for cleaning motors, refrigeration parts, tools, fans, etc. Use it anywhere grease is a problem. Aerosol packed in big 16 ounce cans.

Ask your dealer for a demonstration — TODAY!

GUARANTEED Vapco PRODUCTS

Complete literature on request or see your dealer TODAY!

GARMAN COMPANY ST. LOUIS 23, MO.

MAXIMUM EFFICIENCY in MINIMUM SPACE...

The BOHN CH Ceiling Unit

Available in 2, 3, 4, 5 and 7½ tons capacities

- easy and economical to install and service
- silent, trouble-free operation
- insulated to eliminate sweating and absorb sound
- attractive, compact, heavy gauge bonderized steel cabinet with durable hammertone enamel finish
- built-in drain pan

The Bohn Ceiling Unit is a horizontal type blower evaporator, ceiling mounted for air-conditioning stores, shops, offices, restaurants and similar installations. Its attractive cabinet permits mounting directly in the conditioned space or the unit can be remotely mounted and connected to a duct system. Space for steam or hot water coil permits simple conversion to year-round air-conditioning and heating unit. Sectional side panels for easy inspection and maintenance. Filters removable from either side. Full rated 400 CFM per ton. Available in duct or grille models. Buy the known line—the *Bohn* line.

Rear view of Bohn CH Ceiling Unit

BOHN

Refrigeration and Air Conditioning Products • Special Heat Transfer Surfaces

Aluminum and Brass Corporation

Betz Division • Danville, Illinois

General Offices: Detroit 26, Michigan

Anheuser-Busch

Expands Refrigerated Cabinet Line for Ice Cream, Dairy Items

ST. LOUIS — A greatly-expanded line of Anheuser-Busch refrigerated cabinets with new features will be available to the ice cream and dairy industries in 1958, it was recently announced by Fred W. Schulenberg, sales manager of the firm.

In addition, he said that the refrigerated Cabinet Div. has added approximately 200,000 sq. ft. of floor space to the St. Louis operation which includes a new product display area. Various models featured in the 1958 line will be on display in the area.

The line consists of automatic defrost, glass front merchandisers; glass top merchandisers; countertop merchandiser and fountainette; chests and upright storage cabinets; milk cabinet, dairy merchandisers, and supermarket dairy cases; and truck cabinets for low temperature applications. The various models were described as follows:

Automatic defrost glass front merchandisers: Three different models are available in this type of cabinet. The AG-5, AG-6, and AG-7 replace the AD line. These cabinets have either a 5, 6, or 7-ft. length. The main difference between the new AG line and the present AD model is that the new AG's will be lower and will show more of the product.

Glass top merchandisers: In this cabinet, three sizes are also available. The GT-12, GT-16, and GT-23 replace the SG line. Available in 12, 16, and 23-cu. ft. capacities, the new GT line differs from the previous SG line in that it features more product visibility, easier to open lids, in addition to a clog-proof condenser.

Countertop merchandiser and fountainette: In this line of cabinets, the CM-6 and FS-8 replace the former AC-7 and FS-6.

Chests and upright storage cabinets: The new line in these cabinets comprises the 4SU model and the 4, 6, 8, 10, and 12 WU models all of which replace the SC, WS, and WC models. Among the improvements in the SU and WU series are stainless steel lids, greater capacity, and a clog-proof condenser.

Also available in this line is a new US 27 upright storage cabinet with a 27.2-cu. ft. capacity, the company said.

Milk cabinet — dairy merchandisers — supermarket dairy cases: All models in this line are new for 1958. The MC-600 dairy cabinet is recommended for school cafeterias and other self-service dairy product outlets. Model designations of the dairy merchandisers and supermarket dairy cases are DM-5 and DMD-7, both of which have self-contained units, and DCR-8 and DCR-12 which are remote-unit type cases.

Truck cabinets for low temperature cabinets: Seven models are available in this type of cabinet. Five of them are new, and two are carry-overs from last year. The new models are the TB-3, TB-4, TU-4, TCN-6, and TDN-6. The TD-4 and TR-4 are again being manufactured for the 1958 line. These cabinets vary from 3 to 6 ft. in capacity.

Swift Opens Refrigerated Shipping Dock In Buffalo

BUFFALO — The shipping dock of the newly-opened Swift & Co. sales building here is completely refrigerated, "a new feature in sales distribution centers."

There are separate facilities for receiving and loading transport trucks to speed up shipments.

The one-story building has 47,000 sq. ft. of floor space at 665 Perry St.

Perishables Refrigerated by

Permits Wide-Open Mass Display To Store, Sell Meat, Dairy Products

NILES, Mich.—A new "Air-Skreen" sales and storage cooler that permits a wide-open mass display of perishables protected from room temperatures by a controlled cold air screen has been developed by Tyler Refrigeration Corp.

Refrigerates Area Within Aperture

The air screen refrigerates all the area within the display aperture. Said to use two coil areas and a blower, details were not made available.

The cooler combines in one unit the functions of storage, display, and sales of perishables, it is claimed.

Typical perimeter store suggested by Tyler Air-Skreen Sales and Storage Cooler. Note segregated entry, storage and sales facilities for each department—achieved without traffic jams in backroom, or interference with customers. Floor space saved can be added to sales area. Tyler Air-Skreen Coolers and Sales-Cases make a perfect merchandising combination.

"It is based on entirely new refrigeration principles created by Tyler engineers in years of extensive development work and for which patents have been applied," said Robert L. Tyler.

He added that the equipment makes it possible to receive and store meats, produce, and dairy products in a fast, orderly way and then display-load for wide-

(Concluded on next page)

For all refrigerant and air conditioning needs . . .

PENNSALT'S COMPLETE LINE OF CONTROLLED-PROCESS ISOTRON REFRIGERANTS

in the quantities you want from a pound to a tank car

ISOTRON REFRIGERANT 11 . . . low vapor pressure refrigerant. Available in 100- and 200-lb. non-returnable drums, ton containers, tank trucks and tank cars.

ISOTRON REFRIGERANT 12 . . . moderately high vapor pressure refrigerant for most types of refrigeration and air conditioning equipment regardless of size. Available in 15-oz. cans, 10-, 25- and 145-lb. cylinders, ton containers, tank trucks and tank cars.

New in the Line . . .

ISOTRON REFRIGERANT 22 . . . high vapor pressure refrigerant for use in room-size air conditioners, domestic freezers and many larger units. Available in 2-lb. cans, 9-, 22- and 125-lb. cylinders, ton containers, tank trucks and tank cars.

ISOTRON REFRIGERANT 113 . . . very low vapor pressure refrigerant for multi-stage cooling systems using centrifugal compressors and in brine chilling systems. Available in 100- and 200-lb. non-returnable drums, ton containers, tank trucks and tank cars.

ISOTRON REFRIGERANT 114 . . . moderately low vapor pressure refrigerant widely used in drinking water coolers. Available in 1-lb. cans, 10-, 25- and 150-lb. cylinders, ton containers, tank trucks and tank cars.

ISOTRON refrigerants meet or surpass all accepted industry standards. Get economy-priced, quality products. Order Isotron from your refrigeration wholesaler

Cold Air Screen

New Tyler Air-Skreen Sales and Storage Cooler in recent Grand Rapids installation with 8-ft. front. Opening may be as wide as desired, and storage capacity may be varied according to individual store requirements.

Clerk loads Air-Skreen sales compartment from within the storage cooler itself.

As customers see rear loading of Tyler Air-Skreen Cooler. No interference with buying.

(Concluded from preceding page)

open self-service sales without re-trucking and direct from inside the storage room.

The Air-Skreen cooler, Tyler asserted, employs a single balanced refrigeration system which maintains a uniform temperature throughout.

"Total cost of refrigeration unit and coiling is less than that for a separate cooling room and display case," he said.

From a merchandising and store operation point of view, Air-Skreen provides a better, larger display with unlimited visibility. It has four times the linear shelf footage of a single case and greater cubic foot display capacity than a multiple-shelf case, Tyler declared.

The merchandising unit has a display base with three plain or wire rack shelves adjustable both for height and for slope. It rear loads from the storage cooler, eliminating interference with customers and excuses for displays running low.

'Lessens Damage to Stock'

It also lessens damage to stock through a drastic reduction in handling, Tyler maintains.

Due to a combination of functions and use of vertical display area, it allows better utilization of floor space and requires smaller back room areas, he added.

Tyler declared that in anticipation of increased demand on the introduction of the Air-Skreen cooler, Tyler has nearly tripled its cooler production facilities both here and at the Waxahachie, Texas plant.

An Air-Skreen cooler was recently installed in a Grand Rapids, Mich. supermarket. It has an 8-ft. wide front. However, Tyler noted, the opening can be as wide as desired and storage capacity can vary according to store requirements.

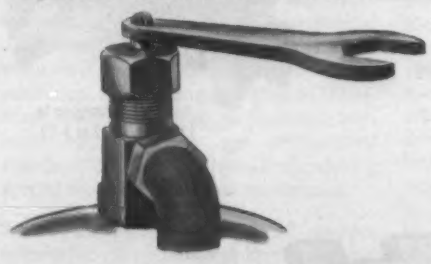
. . . new dual-purpose

ISOTRON®

Cylinder Wrench

Use the Isotron Wrench On Cylinder Cap Fittings

Use the Isotron Wrench As Cylinder Valve Stem Handle



You can get this useful, dual-purpose wrench FREE when you order Pennsalt Isotron from your distributor. One wrench given with *each* purchase of any size cylinder of Isotron Refrigerant 12 or Isotron Refrigerant 22. Offer—beginning April 1, 1958—good only while limited supply of wrenches lasts.

Isotron Department 628
PENNSALT CHEMICALS CORPORATION
Three Penn Center, Philadelphia 2, Pa.

Pennsalt Chemicals
ESTABLISHED 1850

LARKIN
means low prices!

LARKIN CEILING HUMI-TEMP

Price is only one factor in the selection of any product—especially one that has so important a task as protecting valuable perishables. Performance must come first. Quality cannot be overlooked. Durability is highly important. Larkin has all of these. And Larkin has low prices, too. Compare them and see for yourself how low they are.

For the latest Larkin price list, see your wholesaler. If you wish, write direct to us. We shall be glad to send you one.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Air Cooled and Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers

LARKIN COILS

'Guests Unaware of Units'

Periodic Inspections Reveal 'Minimum' Problems In Hotel's Air Conditioning

LOS ANGELES—Periodic on-the-job inspections of the air conditioning equipment in plush Beverly Hilton hotel in Beverly Hills here has revealed minimum problems in maintenance and upkeep of the system, according to the building superintendent.

Verne Roberts reported to manufacturer's representative Air Conditioning Supply Co. that "only two bearings replaced in more than two-and-a-half years' service have been the only trouble spots on the more than 425 separate pieces" of Drayer-Hanson air conditioning equipment in the hotel.

Infrequent comment from a guest about noticeable movement of air, he said, was due to the type of diffusers used in conjunction with the air-handling equipment. He solved this by cutting down incoming air to a minimum by use of a three-way wall switch to achieve a degree of conditioned air, but a controlled distribution.

Roberts comments that operational costs have been kept to a low unit figure because the concealed units contain motors small enough to do the job of individual room air conditioning with "but slight demands upon electricity."

"Only indication of a noise factor in the fan-filter-coil units," he stated, "was discovered as caused by the need for a filter change." Filters are now being changed once every three to four months on each unit of equipment.

"Other than this," he said, "guests have been totally unaware of the operating equipment immediately overhead."

Lind Davenport, president of Air Conditioning Supply Co., disclosed that latest performance tour data "is of particular interest." At the time the Beverly Hilton was in planning stages, D-H accomplished job-site tests of the air conditioning equipment, such as rating, noise, and cost factors before contracts were let.

SEND FOR REPRINTS

Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.

Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Enforcement Manpower

San Francisco Budget Doesn't Include Money for Cooling, Refrigeration Code

SAN FRANCISCO — Without warning or explanation, Mayor George Christopher submitted the budget for 1958-59 to the board of supervisors April 18 and did not include any money for the positions needed to enforce the air conditioning, refrigeration, ventilation, and heating provisions of the new building code which legally went into effect in May 1956.

The new positions recommended by Sherman P. Duckel, director of public works, remain in the budget being considered by the board of supervisors, which will permit the Civil Service Commission to hold examinations and build up an eligible list.

The new code requires an annual inspection of all existing refrigeration above certain minimum sizes. After the initial annual inspection, a period of five years will elapse before annual inspections resume.

This provision was made to meet objections of some apartment house owners with older type systems serving individual refrigeration units in each apartment from a central equipment room. Some of these systems use type 3 refrigerants. Owners say they will replace with new self-contained refrigerators but do not wish to have to do this all at once.

New code also provides for annual inspection of places of public assemblage for adequate air changes, and for inspection of garages and all other buildings where motor vehicles are allowed to see that adequate air exhaust is provided.

Civil Service Commission has cooperated with the industry by setting up qualifications requiring actual experience in the field to be inspected, in addition to training.

A special requirement for the new mechanical engineer position in the Bureau of Building Inspection demands a minimum of three years' engineering experience in refrigeration, air conditioning, heating, and ventilating.

Departmental request is for eight new "heating, ventilating, and air conditioning inspectors," denied when the mayor scratched the money column.

Departmental request for four "mechanical inspectors" was partly denied. The mayor allowed only two men already on the payroll doing boiler inspection and air pressure tank work who have been blanketed into the new "mechanical inspector" classification.

Distributor's Open House Celebrates Quarters Move

CINCINNATI — An open house for the air conditioning and heating trade was held recently at the new location of Allied Distributing Co., 49 Central Ave.

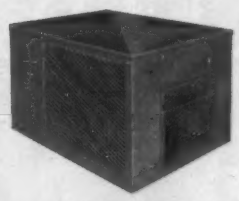
Allied is the distributor of General Electric commercial and residential air conditioning and heating units and was formerly at 3908 Montgomery Road, Norwood.

You can count on
HIGHER PROFITS
WITH
Curtis
AIR CONDITIONERS

Evaporative Condensers and Cooling Towers up to 100 tons
Air handling units to match.

Packaged Liquid Chillers—7½ to 100 tons—F-12 or F-22. With room console units to provide controlled cooling and heating without duct work.

Packaged air conditioning units—3 through 50 tons.



Packaged Air Cooled Air Conditioning Units—2 through 7½ tons. Residential and commercial applications.

Condensing units up to 100 tons—F-12 or F-22.

HERE'S WHY...

MAXIMUM DEPENDABILITY
Each CURTIS unit is backed by 104 years of engineering and manufacturing experience . . . one of many reasons why CURTIS air conditioning equipment operates at maximum efficiency with a minimum of maintenance.

CUSTOMER SATISFACTION
The long operational life and minimum service requirements of CURTIS air conditioning, combined with peak performance, assures satisfied customers.

PRE-SOLD PROSPECTS
National advertising beamed at virtually every prospect category helps *pre-sell* Curtis equipment for you. CURTIS provides sales and promotional aids to make your selling job *easier.*

PRICED FOR PROFITS
All Curtis air conditioning equipment is *competitively* priced, with a very generous profit margin *for you!*

REMEMBER—
you can count on
Curtis
OUR 104th YEAR
MANUFACTURING COMPANY • REFRIGERATION DIVISION
1912 Kienlen Ave., St. Louis 20, Mo.
C-35

***Handy* Tube Bender**
Smoothly Bends any pipe or Tubing ⅜"-1⅛" O.D.

• Just a twist of the wrist assures perfect, even bends — right angle, any angle, U and offset. Save enough on ONE job to pay for your HANDY BENDER

See your supply house—or write for free folder today.

HOLSCLAW BROS., INC.
428 N. Willow Road • Evansville, Indiana

Pays Double Dividends

Surprises Commercial Cooling Buyer

Runs Store's Own Ad To Point Up New Air Conditioning Installation

MONTGOMERY, Ala. — A unique twist in newspaper advertising which has paid double dividends in building sales of commercial air conditioning equipment for Capital Refrigeration & Air Conditioning Co. here consists of "duplicating the air conditioning customers' newspaper ads."

Whenever James Drum, head of the York dealership, air conditions a department store, a restaurant, or a retail specialty shop, for example, he naturally wants to publicize the fact.

Instead of running the usual "congratulations" type of display ad, however, Drum goes through back issues of the local newspaper, until he finds a typical display ad which has been run in the past by the store just air conditioned.

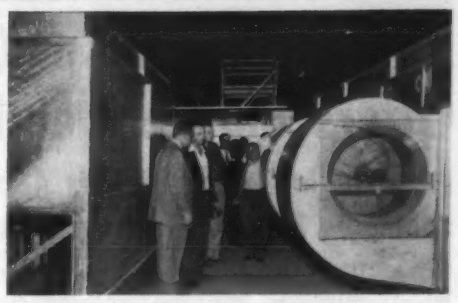
Then, Drum runs a display ad of the same size exactly following the format of the original ad, but changing the copy to read "shop in air conditioned comfort." Below is the store name and then the notation: "Completely air conditioned by Capital Refrigeration & Air Conditioning Co."

In most circumstances, the store owner isn't "let in on it" until the ad has appeared, which makes it something of a surprise to everyone concerned.

Drum feels that since most retailers closely scan the newspaper ads of their competitors, and even those of other retail fields, use of a series of such ads over the period of several years automatically identifies his concern with business-building air conditioning installations in the city of Montgomery.

Around 25 such ads have been run to date, all of them carefully reproducing the display ad format of the client, and, invariably, response is much better than the usual type of "institutional" advertising.

"It may all seem very abstract," Drum admitted. "But we know that it works. A lot of our retail store cooling jobs have come from store owners who call in and ask whether we are the firm which cooled certain stores. Such calls prove that the firm name sticks in the ad-reader's mind."



OVER 175 members of the National Association of Practical Refrigeration Engineers were guests at the Recold Corp. factory during a recent combined meeting of the Los Angeles and Colton chapters. Several NAPRE members examined a 150-ton Recold evaporative condenser during this special plant tour. Other highlights included a complete review of the facilities used in fabrication of Recold units, inspection of some of the ammonia equipment lines, a visual demonstration of a "Vapomatic" defrost system, and a visit to the Museum of Air-Conditioning and Refrigeration Equipment.

Worthington

Distributor, Dealer Salesmen Can Win 'Prize Flight to Profit'

HARRISON, N. J.—All distributor and dealer salesmen of Worthington Corp.'s Air Conditioning Div. will have the opportunity to win 7-day, all expense paid trips for two to Bermuda in Worthington's "Prize Flight to Profit" Contest.

The trip starts at the Waldorf-Astoria hotel in New York City where the winners will spend the first night. The following day they board a plane for a vacation in Bermuda.

The trips are awarded either on volume or by a drawing, based on the types of accounts. No minimum orders are required for a dealer to be eligible for this contest.

Worthington dealers not only have a chance for a trip to Bermuda, but also earn valuable points toward merchandise prizes. Trip chances and points are awarded for the purchase of each Worthington air conditioning product covered by the contest.

The points that are earned are used to select brand merchandise from a catalog of prizes. The trip chances are accumulated and a drawing will be made to determine the winners. The greater number of chances earned, the greater opportunity the dealer has of winning a trip.

To guarantee everyone an equal chance, the contest has been broken down into three groups based on expected sales volume. Winners of the Bermuda trip will be announced early in July and the trip will be taken in September of 1958.

Get your copy

Operating Costs of Residential Air Conditioning and What This Means to Dealers and Installers. By R. A. Gonzales—25¢ each.

Mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort St., Detroit 26, Mich.

IN ALL NEW NEMA RATINGS THROUGH 125-HP, GENERAL ELECTRIC OFFERS . . .

Immediate Shipment of TRI 55 CLAD Motors for Part-Winding Start Applications

Now, General Electric's full line of standard Tri-Clad '55' Motors—through 125 hp—can be readily connected for part-winding starting, or virtually any other starting method . . . with no sacrifice of operating characteristics. You get optimum motor performance, without compensation for starting conditions. Thus, when there are limitations on inrush current, you can now use off-the-shelf standard G-E motors instead of ordering special modifications from the factory.

FAST DELIVERY—Standard G-E motors—suitable for part-winding, reduced voltage, or full-voltage starting—are available from over 325 distributor and General Electric district warehouses throughout the country.

EASY INSTALLATION—New design makes all 1800-rpm and slower models ideal for use on multi-V-belt drive applications. All 1800-rpm motors have part-winding connection diagrams on nameplates, and all motors are factory lubricated. All-angle mounting and handling is possible with all Tri-Clad '55' motors through 125-hp.

FOR MORE INFORMATION on quiet running G-E motors and control for part-winding starting, call your nearby Apparatus Sales Office or distributor, or mail coupon for free bulletin. General Electric Co., Schenectady, N. Y.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Section B896-2
GENERAL ELECTRIC COMPANY
Schenectady, N. Y.

Please send me the following publication:

GEA-6602—Describing advanced features of new Tri-Clad '55' motors through 125-hp.

NAME.....

TITLE.....

COMPANY.....

ADDRESS.....

CITY, STATE.....

MY G-E MOTOR DISTRIBUTOR IS:

.....

Air Conditioning of Capehart Military Housing Offers Big Residential Market for Industry

Problems In Getting Projects Approved, However, Spotlights Need for Improving Public Acceptance

WASHINGTON, D. C.—With air conditioning planned for possibly 20,000 of the nearly 100,000 dwellings scheduled to be built for Army, Navy, and Air Force personnel under the Title VIII (Capehart) housing program, the industry is offered a challenging market.

Some of these houses have been completed, but it will probably be well into 1961 before the project is wrapped up, indicate officials of the Department of Defense.

Those houses with air conditioning, as might be expected, will be located in the south, but it should be emphasized that it is definitely not the policy of the Defense department to air condition living quarters. It is only through "exception to policy" that such air conditioning is authorized.

Of vital interest to every taxpayer is the question of what this Capehart housing program will cost him—with or without air conditioning. The answer is: Nothing. These projects are privately financed and paid for out of the housing allowance given to officers and enlisted men when government quarters are not available.

Occupants of Capehart housing never see this allowance, in fact, because it its withheld from their pay.

Even with the private financing arrangement, Congress has placed a top limit on the cost of the Capehart houses. They're limited to an average of $16,500 apiece in each project. This does not mean that each house can cost no more than $16,500 but that if 100 houses, say, are constructed at a military base, the total project cannot run more than $1,650,000. Two, three, and four-bedroom houses are provided.

That only a relatively small percentage of the houses will be air conditioned probably reflects consumer attitudes. Despite the great gains made in residential air conditioning sales in recent years, the American public would appear not yet completely sold on it, judging by the industry's sales figures. Certainly, the industry is agreed, the market potential has been barely scratched.

Taxpayers' Resistance To Expenditures

Thus, taxpayers who haven't been convinced they need air conditioning in their own homes aren't likely to favor it for military housing, or so the Department of Defense fears, even though such installations under the Capehart program require no outlay of tax money except for operation and maintenance.

Further than that, air conditioning of military housing might actually save money for taxpayers, according to data developed by the Air Force, by helping retain personnel that have been trained at considerable expense to perform the exacting jobs required by guided missiles, rockets, computers, etc., etc.

The fact that the re-enlistment rate has been dropping rapidly has caused considerable concern recently both within and without the government and is receiving increasing attention.

The Air Force, for example, points out that an ordinary airman, after his first four-year enlistment, represents an investment of $14,875 in training. If somehow re-enlistments could be increased just 1%, the savings in training costs alone would total $67,815,000 over a three-year period.

Air conditioning of family and bachelor living quarters for airmen, plus operation and maintenance for three years, would total $27,257,000, so there'd be a net saving or "profit" of $40,558,000, the Air Force figures.

Cost of training officers runs much higher. The commander of a B-47 bomber represents an investment of $618,000 in training; a jet pilot, $122,000; an aircraft observer, $49,190. This averages $200,000 per officer.

If just 25 more officers could be retained in the Air Force every year for three years, there'd be a saving of $15,000,000, says the Air Force, while the cost of air conditioning living quarters for the same period would be $9,100,000, leaving a "profit" of $5,900,000 in training costs alone.

Whether air conditioning of quarters would, in itself, retain personnel might be difficult to establish beyond all doubt, but a recent survey of several hundred enlisted men at one Air Force base in the southwest gives some positive indications.

72% of Airmen See Cooling As Incentive To Stay

Asked "do you think that air conditioning of your quarters will create an incentive for you to re-enlist," 72% said "yes."

The same percentage also said "yes" to the question: "Assuming that as a bachelor you could continue to live in air conditioned quarters and/or as a family man you and your family would be furnished air conditioned housing units, would you choose to make a career in the Air Force?"

To numerous other questions along similar lines these airmen gave overwhelming approval to air conditioning, the percentage of favorable replies running even higher than in the above two queries.

Besides this positive approach to the benefits of air conditioning, the Air Force has some interesting figures on what can happen without it.

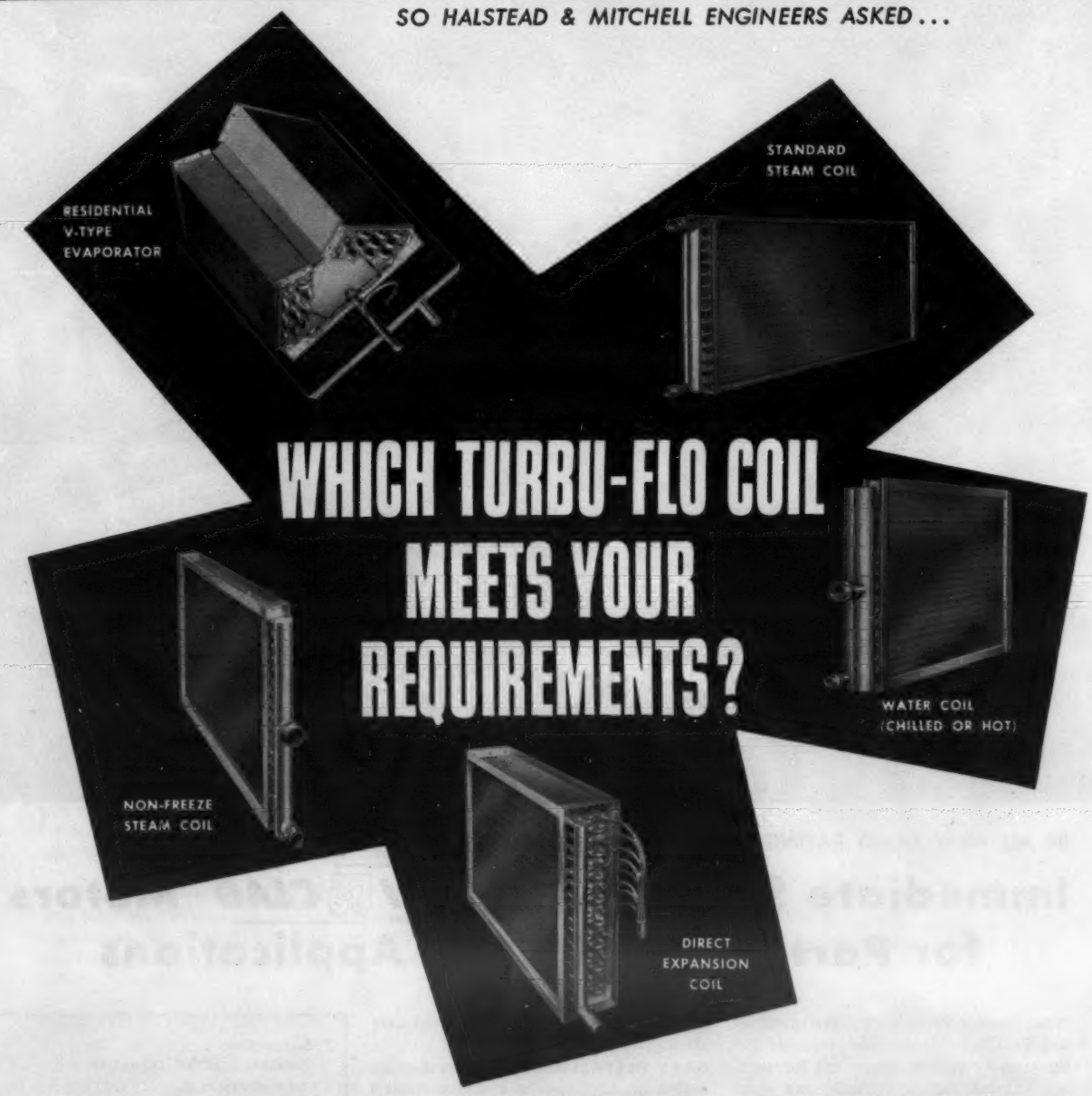
Studies made at a base in Texas revealed that during the four hottest months of summer:

(1) Number of officers and airmen on sick call rose from a monthly average of 1,123 to 1,486 with a peak of 1,748;

(2) Ground accidents rose from an average of 28 per month to 38 per month;

(Concluded on next page)

SO HALSTEAD & MITCHELL ENGINEERS ASKED . . .



Halstead & Mitchell coils with Turbu-Flo fins are designed for rugged and long service life. And Turbu-Flo provides up to 15% more heat transfer capacity.

STEAM COILS are available in both standard and non-freeze types. WATER COILS are for use with chilled or hot water. DIRECT EXPANSION COILS are equipped with a pressure type distributor and circuited for minimum refrigerant pressure drop . . . will accommodate any make expansion valve, refrigerants 12 or 22. All coils are regularly available in from 1 to 8 rows deep, in finned heights of 12 to 36 inches, and in lengths up to 10 feet. Manifolding can be arranged for left, right or opposite-hand connections. Other sizes or special coil types can be provided to meet your specifications.

EXCLUSIVE, EFFICIENT TURBU-FLO

All coils feature the exclusive Turbu-Flo fins. Streamline design creates better air wash, lowering air film resistance and improving heat transfer; yet friction is at a minimum.

Turbu-Flo fins are made of aluminum (available in copper), mechanically bonded to seamless copper tubing.

Casings are of heavy gauge steel fully protected against corrosion or of heavy gauge aluminum. Surrounding flanges simplify ductwork installation.

Write for more specific information, delivery and prices. *Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.*

HM Halstead & Mitchell

Military Housing Air Conditioning--

(Concluded from preceding page)

(3) Vehicle accidents rose from 9.5 per month to 11 per month;

(4) Overtime increased from an average of 395 hours per month to 800 hours per month;

(5) Organizational punishment rate per 1,000 military personnel rose from an average of 7.1 per month to 12 per month.

But despite facts like these, the Department of Defense apparently does not think it can give blanket approval to air conditioning of quarters. In other applications, such as medical facilities, technical operations, "morale builders" (theaters, clubs, etc.), and administrative buildings the head of a major air command, or in some instances the base commander, is empowered to authorize air conditioning where records show at least 1,000 hours per year when the temperature reaches or exceeds 67° F. wet bulb.

Secretary of Affected Service Must Give OK

To air condition quarters, however, including dwellings constructed under the Capehart program, approval must come from the Secretary of the Air Force, Army, or Navy for the respective service. And a rule of thumb seems to be developing whereby such approval is given only for areas with 2,500 hours or more per year of 67° F. wet-bulb temperature — in sharp contrast to the 1,000 hours per year for other applications.

In any event the Capehart program will probably see air conditioning in some 16,000 dwellings for the Air Force and a somewhat lesser number for the Army and Navy.

Exact total of such air conditioned quarters will likely be undetermined until all the projects are completed in 1961. Some have been approved but deferred; others are in stages of bidding, construction, study.

3 Completed Capehart Projects Air Conditioned

Three Capehart projects have been completed for the Air Force, and all three happen to be air conditioned. There are 500 units at Eglin Air Force Base in Florida, 87 at Sewart A.F.B. in Tennessee, and 944 at Dyess A.F.B. near Abilene, Texas.

Of all the presently programmed Air Force projects, six will use heat pumps (6,559 of them), according to current plans. All the rest will employ conventional air conditioning and heating systems.

The installations made for Dyess at Abilene are probably typical. They range in size from 2½ to 3 tons with a scattering of 5-ton systems. Generally, air-cooled equipment is being used with the condensing unit section mounted on a concrete pad outside the house and the evaporator coil placed in the warm air heating system.

Incidentally, the Air Force suffered unfavorable publicity on this project some months ago when the rumor was circulated that 200 of the 944 air conditioning systems were out of operation at one time.

Neither the source or a foundation for this rumor was ever found, for an Air Force investigation determined that at the most only 12 units (about 1%) were inoperative at any one time whereas as many as 462 furnaces failed at one time with hardly any mention being made of this.

As might be expected with a project of this magnitude, it was not entirely devoid of problems. Some resulted when the original schedule calling for occupancy of eight housing units a day was thrown aside to allow as many as 30 families to move in at a time. Matters weren't helped either when a power failure occurred in the early stages. And when electricians set about to correct difficulties with doorbells, they fouled up the air conditioning control wiring in some houses.

Remington New Orders 100% Ahead of '57

AUBURN, N. Y.—Completed sales of Remington Corp., manufacturer of air conditioning equipment, through March 31, the first five months of its current fiscal year, were 40% ahead of 1957 and new orders booked during this period were over 100% ahead of the previous year, according to a general letter to the company's stockholders, from Herbert L. Laube, president.

The letter to stockholders announces Remington's 1958 Stockholders' Purchase Plan under which stockholders may purchase, for their own use, air conditioning equipment manufactured by the firm at substantial discounts.

Laube said most orders are for "incremental" air conditioning systems.

WHAT . . WHEN . . WHERE

— A Guide to Coming Events of Interest

Air-Conditioning & Refrigeration Institute Annual Meeting
May 4-7, The Homestead, Hot Springs, Va.

National Restaurant Association Convention, Exposition
May 5-9, Navy Pier, Chicago.

Western Air Conditioning, Heating, Ventilating and Refrigeration Exhibit
May 7-11, Shrine Exposition Hall, Los Angeles.

Industrial Heating Equipment Association Meeting
May 18-21, The Homestead, Hot Springs, Va.

Institute of Appliance Mfrs. Annual Convention, Exposition
June 1-4, Netherland-Hilton hotel, Cincinnati.

Edison Electric Institute Annual Convention
June 9-12, Boston.

Oil-Heat Institute of America Convention, Exposition
June 9-13, New York City.

American Society of Heating & Air-Conditioning Engineers and American Society of Refrigerating Engineers JOINT MEETING
June 23-25, Leamington hotel, Minneapolis.

Series 272 and 1272 single function control available for either low or high pressure. Also temperature models.

Series 273 and 1273 dual function control. Lockout and manual reset available for either low or high pressure cut-out. Also temperature models.

EACH IS 2 SWITCHES IN 1 YET YOU PAY NO PREMIUM

LOOK AT THESE ELECTRICAL RATINGS

SERIES 272, 273 PRESSURE CONTROLS
without external adjusting knobs

Motor Ratings	Single Phase			Two and Three Phase			
	115 V.	208 V.	230 V.	208 V.	230 V.	440 V.	550 V.
A.C. Full Load Amps.	18.4	13.8	12	3 H.P.	3 H.P.	3 H.P.	3 H.P.
A.C. Locked Rotor Amps.	110.4	82.8	72				
D.C. Full Load Amps.	4.6	—	2.3	—	—	—	—
D.C. Locked Rotor Amps.	46	—	23				
A.C. Non-Ind. Amps.	24	24	24	—	—	—	—
D.C. Non-Ind. Amps.	3	—	0.5	—	—	—	—

Pilot Duty — 125 VA.; 115 to 600 V. A.C.
57.5 VA.; 115 to 600 V. D.C.

SERIES 1272, 1273 PRESSURE CONTROLS
Single or dual function

Motor Ratings	Single Phase			Two and Three Phase			
	115 V.	208 V.	230 V.	208 V.	230 V.	440 V.	550 V.
A.C. Full Load Amps.	24	24	24	16	15	7.5	6
A.C. Locked Rotor Amps.	144	144	144	96	90	45	36
D.C. Full Load Amps.	4.6	—	2.3	—	—	—	—
D.C. Locked Rotor Amps.	46	—	23	—	—	—	—
A.C. Non-Ind. Amps.	24	24	24	—	—	—	—
D.C. Non-Ind. Amps.	3	—	0.5	—	—	—	—

Pilot Duty — 125 VA.; 115 to 600 V. A.C.
57.5 VA.; 115 to 600 V. D.C.

Penn 2-pole refrigeration controls handle polyphase motors without the use of magnetic starters

Here's real application versatility and advantages. With these controls, cost of contactor is eliminated if motor has built-in overload protection. If motor requires external overload protection, the motor starter can be replaced by the more economical "manual starter." So . . . in either case, these Penn controls *save you money!*

With their two separate circuits, each control is really 2 switches in 1. Two separate load circuits can be controlled. When wired as a 2-pole switch in single phase circuits, it always breaks the "hot" line. On 3-wire, single phase A.C. systems, it can control simultaneously a 230 volt compressor motor and a 115 volt fan motor, solenoid valve or other device.

So, don't settle for less. Ask your wholesaler for Penn . . . the refrigeration and air conditioning industry's favorite control.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 39th ST., NEW YORK, N.Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

They'll Do It Every Time

by Jimmy Hatlo

HEY! GIMME THAT WHOOZIS FILE--YOU KNOW--THAT GUY I WAS TALKING TO LAST WEEK! HE'S WITH THAT WHATZIS COMPANY--MAKES THOSE DOOHICKEYS--LOOK IN THE WHAT-CHA-MA-CALL-IT ENVELOPE!! REMEMBER? WE ORDERED THOSE THINSAMAJIGS FROM THEM LAST YEAR OR SO---
WHOOZIS--- WHEREZIS!! YOU HAVE TO BE A MIND-READER TO UNDERSTAND THAT SO!!! WHATZIS!
HOW DID HE EVER GET TO BE A STRAW BOSS? HE COULDN'T MAKE TRAIN-CALLER ON THE DOUBLE-TALK SHORT LINE--
HE'S THE GUY WHO'S ALWAYS HAVING HIS LETTERS TYPED OVER BECAUSE POOR MILLIE CHANGED WHAT HE DICTOOTED--
IF HE'D JUST SET THAT LINGO TO MUSIC HE'D HAVE A HIT ROCK-AN-ROLL DO-FUNNY--
PUTTING UP WITH THE ERK-JAY WHO TALKS HIS OWN CODE---
THANK AND A TIP OF THE HATLO HAT TO DOROTHY DASE, 403 W. BALTIMORE, DETROIT 2, MICH.
© 1958, KING FEATURES SYNDICATE, Inc., WORLD RIGHTS RESERVED
3-20

Canny Air Conditioning Contractors Inspect Resistance Heating

THANKS to behind-the-scenes promoting by public utilities, so-called "resistance heating" is getting more attention nowadays from heating and refrigeration contractors.

Formerly they ignored it, or dismissed it as being relatively trivial. Now they're reckoning with it.

To be sure, resistance heat has a long way to go even to be compared commercially with oil, gas, or coal for residential purposes. However, in terms of installation charts and sales curves, its recent gains are noteworthy.

Most interesting progress thus far has been observed in the commercial field, where electric resistance heat is obtaining a real toe-hold.

Commercial space heating *via* electrical resistance equipment embraces such installation sites as: motels and hotels, offices and schools, churches and hospitals, apartment buildings and theaters, restaurants and clubs.

Steadily this market is growing, for a number of reasons. For example: electric space heating substitutes kilowatt hours for man-hours; it is ideal for remote locations, and for rooms occupied only a few hours a day; commercial electric rates are reasonably competitive with oil and gas in such cases; and electric power DELIVERY is available at all times.

Substitution of kilowatt hours for man-hours implies the elimination of high-priced manual labor required by conventional heating plants. Ash handling, coal stoking, valve turning, whistle pulling, oil deliveries, etc., aren't needed.

Costly maintenance is avoided, also, because electric heating not only is automatic but practically free of service and supervision labor charges.

As for that "short occupancy" factor: Schools and industrial plants are occupied only about 30% of the 7,300 hours in a month. Churches and theaters are occupied even fewer hours. Motels are loaded varying numbers of hours (in many cases less than half the hours in a day).

In installations such as these, electrical heating systems conserve B.t.u.'s which, relatively, are higher in price than B.t.u.'s obtained from other fuels. Therefore, intermittent operation tends to equalize total operating costs in favor of electrical resistance heaters.

In the case of remote locations, obviously it is less expensive to utilize existing electric lines—which go EVERYWHERE—than to run new steam, gas, or oil pipes to an off-beat place.

Thus, off-highway motels, mountain cottages, secluded resorts, watchman's shelters at industrial plants (or you name it) can be heated more cheaply by readily available electricity.

Practically everywhere commercial electric rate schedules are lower than residential rates. Hence they become competitive with B.t.u.'s from coal, oil, and gas in many circumstances. As more and more utilities set up special rates for electric resistance heating (combined with summer air conditioning) that situation will become even more favorable. Facilities required for serving one horsepower of air conditioning can serve 2½ kw. of electric resistance heating. Obviously, such special rates make sense.

Moreover, transformers, power lines, etc., already installed to serve machinery in industrial plants (or for the air conditioning of commercial structures) can be used beyond their rated capacity in winter months.

Clean, automatic, dependable warmth under any and all circumstances can eliminate customer complaints, employe grousing, and lost working hours due to sickness. In many commercial installations electrical heat provides built-in advantages of this nature.

Also, by eliminating the high initial cost of boiler rooms, chimneys, extensive piping and trenches—which are involved in many conventional heating systems—tangible dollar savings can be obtained. The latter obviously will appeal to businessmen and taxpayers alike.

Most resistance-heating products have no moving parts—nothing to fail or wear out or be serviced. Nowadays they are built to last indefinitely (particularly those which are sheathed in metal for strength, and insulated with metal for safety).

Additional sales arguments:

Electric heaters come close to 100% efficiency, because all of their heat output is generated within each room wherein it is utilized. There are no stand-by losses with electric heaters—nor are there any piping losses. Although operated at a fraction of their rated output much of the time, they still are almost 100% efficient the instant they are on-switched.

This situation contrasts sharply with boiler plants and piped-fuel furnaces in terms of total operating costs.

There's an interesting variety of resistance equipment on the market nowadays. Baseboard heaters, unit heaters, duct heaters, floor drop-in heaters, electric circulation heaters, and localized radiant heating—all these are available to "hep" contractors.

Incidentally, radiant heating has exciting future possibilities for residences.

Reality plus dreams equal idealism.
Reality plus humor equals conservatism.
Reality plus dreams, plus humor equals wisdom.

—LIN YUTANG

The Greek word for leisure is the origin of our word for school. The Greeks thought of leisure as the opportunity for moral and intellectual development and participation in the life of the community.—R. M. HUTCHINS.

There's a line on the ocean where by crossing you can lose a day. There's one on the highway where you can do even better. —*Indiana Telephone News.*

Wealthy people miss one of life's greatest thrills—paying the last instalment.—*Sunshine Magazine.*

AN INTERNATIONAL INSTITUTION • SUBSCRIBERS ALL OVER THE WORLD

Trade Mark reg. U.S. Pat. Office; Est. 1926

AIR CONDITIONING & REFRIGERATION NEWS

Copyright 1958, Business News Publishing Co.

F. M. COCKRELL, *Founder*

'The Conscience of the Industry'

Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: $6.00 per year; 2 years, $9.00; 3 years, $12.00. All other countries: $10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

EDITOR & PUBLISHER, George F. Taubeneck
EDITORIAL DIRECTOR, Phil B. Redeker
ASSOCIATE EDITOR, C. Dale Mericle
ASSISTANT EDITORS: John Sweet, Hugh Mahar, George Hanning, Robert Lacey
TECHNICAL EDITOR, Frank Versagi
STATISTICAL EDITOR, John MacLean

GEN. MGR., Warren Jones
GEN. PROD. MGR., Walter Schuler
ADV. PROD. MGR., A. M. Barrow
SUBSCRIPTION MGR., Rosalie Ashley
READER'S SERVICE MGR., Vincine Mogyorodi

PRESIDENT, Edward L. Henderson
ADV. MGR., Robert M. Price
WESTERN ADV. MGR., Allen Schildhammer
ASST. ADV. MGR., Joe Sullivan
ADVERTISING REPRESENTATIVES: Rex Smith, Frank Taylor
ADVERTISING OFFICES:
New York, 521 Fifth Ave. MUrray Hill 2-1928-9 Robert M. Price, Frank Taylor
Chicago, 134 S. LaSalle St. FRanklin 2-8093 Allen Schildhammer, Rex Smith
Detroit, 450 W. Fort St. WOodward 2-0924 Joe Sullivan
Los Angeles, 4710 Crenshaw Blvd. AXminster 2-9501 Justin Hannon

Member, Audit Bureau of Circulations. Member, Associated Business Publications.

VOLUME 84, NO. 1, SERIAL NO. 1,519, MAY 5, 1958

Handy Way to Subscribe

To See the Industry In Action EVERY WEEK

Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on residential, commercial, and industrial air conditioning, heating, and refrigeration for contractors, dealers, consulting engineers, distributors, servicemen, and manufacturers. Read the industry's only newspaper every week—you'll profit by it—only $6.00 per year, 52 issues (U.S. and Canada). Foreign: $10 per year.

AIR CONDITIONING & REFRIGERATION NEWS 5-5-58
450 W. Fort St., Detroit 26, Mich.
Send the NEWS every week for: ☐ One Year $6. ☐ Three Years $12.
☐ Payment Enclosed ☐ Bill Me ☐ Bill Company

Name.....
Company.....
Street.....
City..... Zone..... State.....
IMPORTANT: Company's Type of Business.....

TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Corrosion (2)

"In the series on corrosion, you pointed out the advantages of plastic pipe," one correspondent wrote. "I had used some polyethylene on a water line. The line, for part of the way, passed through a service station restroom. It was attached to the cement block wall with regular strap holders. In six months, the pipe had failed in one spot, and was ready to fail in half a dozen other spots.

"The pipe had lost its flexibility, looked like cracked and old rubber, even though the room was heated all winter," he complained.

This gentleman theorized that maybe the odors usual to a rest room might have caused the breakdown of the plastic polyethylene.

In Europe polyethylene has been used for waste disposal; mere odors will not deteriorate it. Only one thing normally found in a restroom which might cause this difficulty.

We asked our correspondent to check, and sure enough he found that the plastic line was passing directly beneath a partially unshielded "sanitary lamp" which is strong ultraviolet light. Ultraviolet light is one of the few things which will cause polyethylene to break down, even though it is pigmented with carbon black to protect it against normal sunlight which contains ultraviolet.

Such a breakdown of plastic is not "corrosion" in the sense that the material is not attacked by ultraviolet light as a metal would be attacked by acid. Instead, the ultraviolet causes the plastic to undergo an internal chemical change which embrittles and weakens it, leading to breakdown.

Polyethylene is now being used with success by cooling tower manufacturers. The piping is able to withstand seasonal temperature changes, sunlight, and normal operating pressures and temperatures without difficulty.

Plastic is now being field tested for baffles in cooling towers—to replace redwood, and it is being used in eliminator blades where corrosion is a particularly acute problem because of the difficulty of access for complete cleaning.

Actually, except in the case of a burnout, the corrosion which takes place *inside* a unit is in such small amounts as to be barely noticeable under normal circumstances. A few bearings may show copper plating, the valve plate may be a bit discolored, but nothing earth-shattering takes place. This small amount of corrosion only becomes significant *if it continues without being detected or stopped.*

Except in a laboratory, no units have ever been opened which do not show some sign of corrosion. In a healthy unit, once this first bit of corrosion took place, the reactive materials were used up and nothing else happened.

Or if the reactive materials weren't used up, they were removed with a drier.

Undetected or unhalted such small-scale corrosion can lead to scored bearings or stuck valves in the compressor, to weakened springs or bellows in controls. Unfortunately, there is no simple way to tell that anything is going on in the unit unless it acts up, in which case the difficulty is usually recognized and corrected.

Realizing this fact, many servicemen periodically replace driers whether they seem to need replacing or not. Since the drier is an effective means of stopping corrosion (by removing the active chemicals or foreign matter), it is a cheap enough price to pay for a year's trouble-free operation, they report.

With or without a drier in the system, the first indication that continuing corrosion is taking place is usually an increase in pressure drop. This happens when the products of corrosion travel through the system with the refrigerant and lodge in small openings or at abrupt changes in direction, restricting the flow of refrigerant in the system.

Although fairly new in the field, there have been several reports from the field that the "moisture indicators" now available serve a valuable, though perhaps unintended, function in that they tend to discolor or cloud up if excessive amounts of foreign matter flows through them.

Detroit RSES To See Films on Compressors

EVANSVILLE, Ind.—Evansville Div., Bendix-Westinghouse, has arranged to provide a program for the Detroit Chapter of Refrigeration Service Engineers Society in conjunction with their two wholesalers, Lee Equipment Co. and Young Supply Co.

The meeting will be held the evening of May 15 at the UAW-CIO Hall, 20424 John R, Detroit.

A 40-page booklet covering Bendix - Westinghouse service and procedures will be given to all attending. This is part of the Educational Sales-Service program announced by Bendix-Westinghouse last fall.

Two films, "A Trip to Bendix-Westinghouse" and "An Electrical Exploration of Motor Compressors," will be presented by John W. Downen, service manager of the Evansville plant.

TOP SECRET REVEALED!

The closely guarded secret of how hundreds of refrigerator and air conditioning service and repair men find the extra time to take on more jobs — take home a bigger pay envelope, has been revealed. It's Frankell's Hermetic Compressor Opener — a fully proven, precision engineered unit that requires only 2 minutes of a man's time to open any shape compressor (up to 20" in dia.) — regardless of the position of the weld. It's easy as A,B,C, — anyone can do it . . . no special fixtures or jigs required . . . and just one hermetic job a week pays for this time saving, money making wonder. Remember, when you repair a hermetic compressor — the profits are big.

$695 NET F.O.B. N.Y.

Ask about our low cost rental plan.

FRANKELL MFG. CO., INC.,
1074 Home Street, New York 59, N. Y.

WRITE DEPT. A, for complete information.

NEWS ITEM: A COMPLETE NEW LINE OF ANSUL PACKAGED REFRIGERANTS IS NOW AVAILABLE. YOUR ANSUL WHOLESALER HAS "FREON-12", "FREON-114", AND SULFUR DIOXIDE IN ONE POUND DISPOSABLE CANS AND "FREON-22" AND METHYL CHLORIDE IN TWO POUND CONTAINERS.

PEOPLE MAKE THE DIFFERENCE BETWEEN PRODUCTS

There's a difference in refrigerants, but it's a difference that doesn't really have much to do with specifications or chemical gobbledegook. The real difference is service—the people who go with the refrigerants. When you buy any Ansul refrigeration product you are getting more than a guaranteed top quality product. You are also getting the help of people who care about your personal refrigeration problems . . . people who are willing and able to help solve them in a creative, imaginative way. We invite you to use our people.

ANSUL CHEMICAL COMPANY / MARINETTE, WISCONSIN

FIRE EXTINGUISHING EQUIPMENT / INDUSTRIAL CHEMICALS / REFRIGERATION PRODUCTS / NATIONAL DISTRIBUTORS OF "FREON" REFRIGERANTS

Specific, Colorful Reasons 'Why I Like Air Conditioning' Expressed

Cite Indoor Charcoal Broiling, No Dirt, Plants Grow Better, Fresh Skin Reasons

LOS ANGELES — Why do ladies love their air conditioned homes so much?

You may be amazed to hear their reasons.

John Norris, president of Lennox Industries, Inc., gathered a group of Lennox air conditioning users from the Los Angeles area in the Sheraton Town House here recently to find out what they liked about their air conditioning and what their problems were.

Comfort, health, and cleanliness would be the prosaic way to sum up the ladies' reasons for liking air conditioning. But they were much more specific and colorful.

'Improved My Daughter's Hearing'

"I have a teenage daughter with a hearing loss," declared Mrs. George Fairbanks from Canoga Park. "A certain percentage of it is due to an allergy. We found that with even temperature in the home, she has been less allergic and her hearing has improved so much in the past year. Her school grades have come up. It is very pleasing to us that she has improved in this way."

Norris was amazed. "This is the first time that it has come out that (air conditioning) has improved hearing."

"Our baby has never had a cold in her life" reported a Mrs. Warren Bryant, "which is quite remarkable for a young one. I used to have an extreme allergy and I don't have that any more.

"We have a completely air conditioned home and then we have an electronic air filter, too. So we never have to open our windows.

'We Have All the Extras'

"We have our blowers running continuously — at night, too. We have the thermostatic control. There is almost nothing we don't have and it's just wonderful.

"We don't have dirt any more, which is wonderful. I don't want you to think I am a poor housekeeper, but because of our electronic air filter, our housekeeper only dusts once in two weeks. It takes all the dirt out so we cut down on maintenance because the dirt is picked up. You don't get dirt in the windows. We are extremely happy with it."

"I don't like outdoor eating," commented Mrs. Joe Joseph. "It's either too hot or too cold. It is never comfortable. That was the primary reason for us having air conditioning in the house so that we can have charcoal broiled meats in the family room."

"Your comments on having a family room where you can charcoal broil steaks is very meaningful," Norris declared.

'Could Alter Outdoor Living'

"It can affect architecture because air conditioning is becoming more and more common. It could be that charcoal patios will become less and less common and family rooms with charcoal broiling equipment will become a standard part of the room.

"Architecture in good homes will be affected, and interior decorating, too."

Mrs. H. L. Smith admitted that "my husband was the one that convinced me that air conditioning was wonderful. All I wanted was new gadgets. But he was right there when it came to air conditioning.

"I just love the comfort and I have indoor plants. They do just beautifully, so much better than they did before."

"Air conditioning has affected the condition of your plants in the house?" asked Norris.

"Yes, very much," she affirmed.

"I probably wouldn't be living a California if it wasn't for air conditioning," asserted Mrs. Ing Remen. "I get ornery when it gets hot."

Mrs. Paul Jarrett of Encino, with three small children in the house, found her children napped an hour more a day with air conditioning.

'If Not Worth $1 A Day, What Is?'

"If that isn't worth a dollar a day, I would like to know what is," she averred. "It has certainly been a pleasure.

"The older child, age four still continues to nap. She was about ready to give up her nap when she was younger. It is quite a problem when children don't take naps because they don't know what to do with themselves."

Mrs. Howard Scheib of Pasadena testified that with air conditioning her skin stays always fresh and nice. It never dries.

"You have noticed a difference in your skin?" Norris asked.

"Yes," she replied. "I don't use so much cream."

Mrs. Leigh Nayle from Whittier says she and her husband enjoy their air conditioning, but "I really don't think sometimes it was a good idea. We are getting to the point where we are getting 'stir-crazy.' We don't go outside and we don't go to see people.

'Why Did We Leave?'

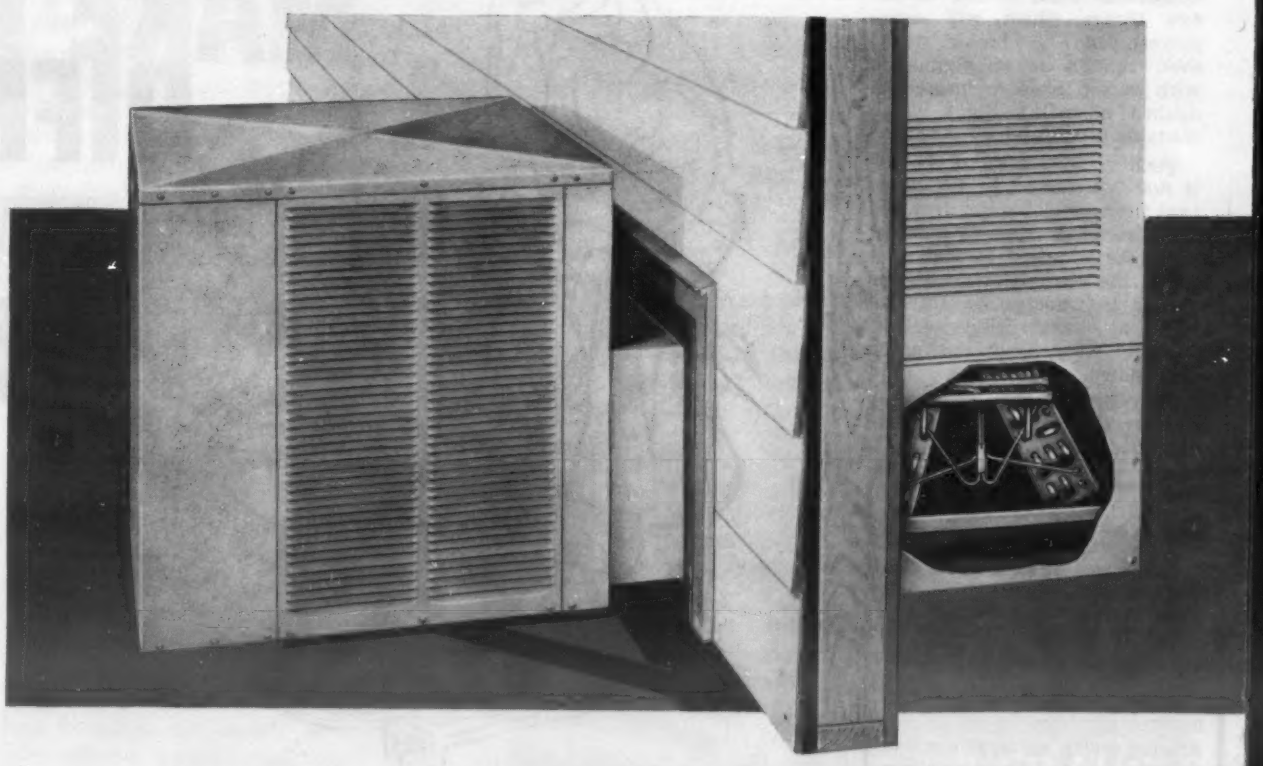
"But when we do go to see people, he wonders why we every left our comfortable house. Our whole bodies are

AT the Los Angeles residential air condi… tries, Inc., John W. Norris, president, … ladies'

THREE NEW PRODUCTS TO HELP YOU SELL EVERY PROSPECT!

❶ new Frigidaire Trans-Wall

SLIDES IN LIKE A DRAWER!



PROVIDE FULL-HOME AIR CONDITIONING NOW...OR LATER WITH EVERY NEW FURNACE YOU INSTALL!

Another Frigidaire First! Installed For a Year at NAHB Research House

Here's a completely new concept in full-home air conditioning—the Frigidaire Trans-Wall System! New "slide-in" Trans-Wall Units are now in production after a full year in an actual installation at the NAHB (Home Builders) Research House, Kensington, Md.

The Frigidaire Trans-Wall System is the simplest, most compact year-round comfort maker ever devised. Here's why! The complete *all-in-one* Trans-Wall Unit consists of an air-cooled condensing unit with twin Super Meter-Miser Compressors plus a "wall-sleeve" that slides through wall to furnace, and a high-efficiency "inverted V" cooling coil that fits into pre-installed housing to give full-home conditioning with any Frigidaire furnace.

Ready to Install—FAST!

All internal wiring is done, refrigerant lines connected, system sealed and checked by the factory. With the furnace located at an outside wall of the house and coil housing in place, all you do is slide Trans-Wall in place and wire in. Trans-Wall System utilizes furnace blower and ductwork.

FRIGIDAIRE DIVISION
General Motors Corporation, Dayton 1, Ohio

While Others Dream of the Future— FRIGIDAIRE

by Women at Roundtable (1)

tioning roundtable held by Lennox Indus- standing) and J. R. Merrill listen to the views.

comfortable," she affirmed.

Mrs. Kenneth Smith of La Canada said, "I'm not like the lady who said she couldn't leave home. I have an air conditioned Cadillac car and an air conditioned restaurant and an air conditioned home. The places inbetween are terrible.

"I also want to say," she continued, "that I am a large lady and I used to have heat rashes and prickly heat. Air conditioning has eliminated all that. I am so comfortable that I just love it."

'I Stay Home Unless People Have Cooling'

Mrs. Edna Garvey, whose home is in Altadena, said "I just love the air conditioning. My trouble is, the heat gets me down. When I'm invited to some home where they don't have air conditioning, I invent all kinds of excuses so that I don't have to go."

Another Encino housewife, Mrs. Walter Mansfield, declared, "We live in the hottest place in the valley and we are always cool. It's so hot up there on Sepulveda Blvd.

"We have an ideal situation," she continued. "We step out of the house into the pool directly and back into the air conditioned house. It's just delightful. We had so much company last summer it almost broke us.

"I want to make a plug on this score. My husband works down in Palos Verdes Estates. But I can't live there because I have a little health problem. I have an allergy that when I breathe the regular air I get choked up.

"Whenever I breathe the fog or go near the beach I become choked. This air conditioning is just perfect for me. I have a sister with me who has an allergy; it has given her relief."

An unidentified woman reported, "We don't have any smog or humidity. All we have to do is turn on the blower and everything disappears."

Sing Filter's Praises

Several ladies sung the praises of their filters. Mrs. Remen, for one, commented, "People probably think I am a poor housekeeper. But I hardly ever dust. I don't need to. We have an electrostatic filter and I dust once every five weeks.

"It saves on everything: draperies, lampshades, and decorations. I have all light upholstery and it saves on the upholstery."

Why did they buy air conditioning? Mrs. Rod Hansen said that "before we built our new home, my husband found I was spending more time in his air conditioned office than at home. So he decided to put it in when we built our new home."

Mrs. Nayle reported, "My husband thought I was crazy in the head when I wanted an air conditioner. It so happens I spent one summer in a wheel chair in the heat. I couldn't go outdoors and I was suffering so. I said next year I am not going through this. So in January we put in the combination heating and refrigeration.

"I will say this," she continued. "Last September and October were very hot days. I turned the refrigeration on about 10:30 in the morning and ran it until 10 at night. For the two months my bill was $9 more than usual."

"My electric bill runs for two months. It is always $19 to $21, summer or winter, because we do everything electric, cooking, washing machine, radio, and television. So it never goes down winter or summer below $19. Now in October my bill was $30.60.

"But we do have an awning outside over the picture window in the living room. But that faces north so it gets very little sun. We have tremendous walnut trees that shade the back part of the house.

'Set Unit at 72°'

"I don't know whether we have a 3-ton or a 5-ton unit. But I have never had to set it above 72° F. to cool the house. I mean I keep it at 72° F. Once in a while I set it to 70° F. when I start it. Then I set it up to 72° F. and then keep it there.

"It has been a wonderful thing. Of course, my husband now wonders why he wasn't smart enough to think of it."

Mrs. Lee Graff of San Marino testified: "My husband was adamant against air conditioning. He said he didn't want any part of it.

'Ups Resale Value'

"When we built our house, we put in air conditioning for a very practical reason. We felt that a new house in our price bracket without air conditioning would have no resale value.

"Mr. Graff has changed his mind completely and is for air conditioning. In fact he has always had a sinus condition. That has been completely eliminated in the year and a half we have had the air conditioning in the house.

"As a matter of fact, he is ready to re-do all of his office with something like probably a 15-ton unit. Anybody in the market?"

Another unidentified participant asserted: "We are so happy with the air conditioning in our home that we had to have it in our car."

'Cook Same Foods All Year Round'

Norris asked Mrs. George Bert, "How has air conditioning affected the meals that you serve your family?"

"Wonderful," she enthused. "I cook like I do normally, all the year around."

"Do you use cold cuts and salads in the summer time?", he prodded.

"Not too much. I like good food."

Next week: Problems? The ladies had them and ask for advice.

full-home air conditioner

INSTALLS EASIER THAN SIMPLEST FURNACE!

New—completely self-contained air-cooled package

Simplified installation

No concrete base needed

Factory-sealed

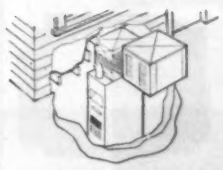
Uses furnace blower and ductwork

No plumbing for water supply

No refrigerant connections

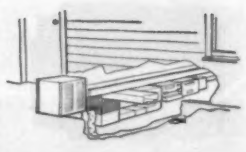
Two sizes 24,000 and 35,000 BTU/hr.

Twin compressors

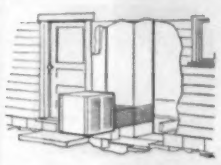


BASEMENT TRANS-WALL SYSTEM
Trans-Wall Unit slides into coil housing above Frigidaire Vertical Upflow Type Furnace. Adaptable to Lowboy Type.

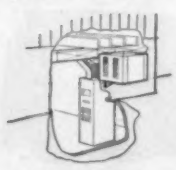
SLAB TRANS-WALL SYSTEM
Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace in housing.



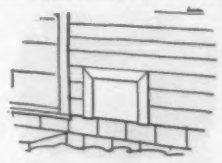
CRAWL SPACE TRANS-WALL SYSTEM
Frigidaire Horizontal Type Furnace. Trans-Wall Unit installs in crawl space with plenum added below coil housing.



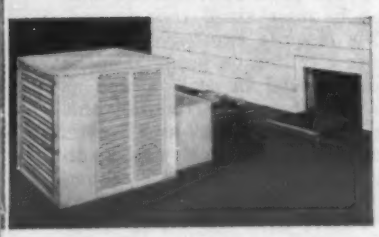
CRAWL SPACE TRANS-WALL SYSTEM
Trans-Wall Unit installs under Frigidaire Vertical Downflow Type Furnace. (Modified Slab hook-up.)



TRI-LEVEL TRANS-WALL SYSTEM
Trans-Wall Unit, bracketed above ground level, installs in coil housing above Frigidaire Vertical Upflow Type Furnace.



ROUGH-IN NOW—INSTALL LATER
Locate new furnace adjacent to outside wall, add coil housing and prepare wall opening. Slide in Trans-Wall Unit at later date.

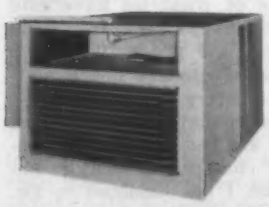


SIMPLIFIED INSTALLATION! TRANS-WALL UNIT SLIDES INTO WALL OPENING 14" x 24"

Less than 350 lbs. net weight, new AIAZ-240 Frigidaire Trans-Wall Unit is easily installed by two men using ordinary tools. Trans-Wall easily adds a full 24,000 BTU/Hr. of Dry-Cool Comfort in virtually any style home after furnace and coil housing have been installed.

1. Rough-in opening. 2. Attach outside mounting brackets (furnished). 3. Complete installation by sliding Trans-Wall Unit in place—connect control box (furnished) and wire in. 35,000 BTU/Hr. unit weighs 370 lbs. and requires slightly larger wall opening 17¾ x 24".

2 NEW HORIZONTAL CONDITIONERS
Air-Cooled

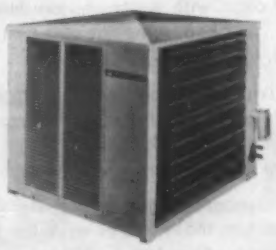


Model AZZ-190 full 19,000 BTU/hr. cooling capacity. Model AZZ-340 full 34,000 BTU/hr. cooling capacity.

Compact units for simplified installation in new or existing structures, designed for all inside, all outside or partially through-the-wall applications. Ideal for attic operation. Can be installed in offices and small shops requiring little or no ductwork. Pre-wired to cut installation time and expense. Adaptable to homes with radiant heat, or where present ductwork is too costly to disturb.

• Compact. Some installations require wall opening less than 2½ ft. x 2 ft. • Factory wired to external control box, and tested to minimize on-site costs. • Sealed Super Meter-Miser Compressors never require oiling. • Model AZZ-340 has two compressors (only one operates during mild weather).

3 NEW CONDENSING UNITS
Air-Cooled. 2 and 3 ton sizes



Model CUAZ-210—full 21,000 BTU/hr. capacity. Model CUAZ-320—full 32,000 BTU/hr. capacity. Other Frigidaire Condensing Units with capacities up to 87,000 BTU/hr.

These new lower-priced units have built-in Frigidaire quality and take less than 5½ sq. ft. of floor or ground space.

- Pre-wired to external outlet box—cuts installation costs.
- Powerful 20" propeller fan mounted on motor shaft eliminates pulleys and belts.
- Full hermetically sealed reciprocating compressor contains lifetime supply of oil.
- Multipath condenser coil design speeds heat removal.
- Weather resistant cabinet for long life.

IS ON THE MARCH!

GM GOLDEN ANNIVERSARY

Frigidaire—Built and Backed by General Motors

For more information call the Custom Products Representative at your Frigidaire distributing headquarters.

A Look at Future Factory Comfort Conditioning (1)

Sees More Concern with 'Acceptable' Humidity at Lower Cost and Tonnage

By B. D. Henderson, Vice President, Westinghouse Electric Corp., Staunton, Va.

This article, being published in two parts, is the text of a talk on "Air Conditioning In Industry" by Bruce D. Henderson, vice president, Westinghouse Electric Corp., Staunton, Va. The talk was presented before the Houston Industrial Forum sponsored by Houston Power & Light Co. It covers all the bases.

I predict that within five years comfort air conditioning of factories and industries will be more common than it is now in offices and commercial establishments. No new facts — no new discoveries — no new technology — and no new equipment are required to bring this about.

The future comfort air conditioning in factories will be based on a different concept than that which we use in homes and stores. We will be more concerned with preservation of acceptable humidity than we will with temperature. We will realize many of the benefits of complete comfort air conditioning with relatively far less cost and less tonnage than we have come to consider necessary for commercial establishments and offices.

For a manager there is only one good reason to air condition a plant: to show more profits at the end of the year.

Today when most companies are cutting expenditures and seeking ways to trim operating costs, many cost conscious executives are giving priority to investments in plant air conditioning because of the increase in worker efficiency it is known to provide.

Even for managers who once rejected factory air conditioning as too expensive, or impractical, have been persuaded to take a new look.

We call it comfort air conditioning to distinguish it from process air conditioning. But the benefits go far beyond comfort — accidents can be reduced — quality can be improved — labor relations can be improved — productivity can be increased. These are in addition to the comfort.

For example research has shown that even with light manual work accidents frequently will increase 35% and more with variations in temperature from optimum of as little as 10°. (Reference: "Light Manual Work Involving an Element of Manual Dexterity" E. E. Osborne and H. M. Vernon— Two Contributions to the Study of Accident Causation. Ind. Fatigue Res. Bd., London, No. 19.)

In heavy manual work the effect of temperature is much more pronounced. An investigation of miners' accident rate shows that at 60° F. accidents were at a minimum, but accidents occurred two to three times as often at temperatures approximating 80° F. (Reference: H. M. Vernon, T. Bedford, and A. G. Warner, London 1927 Industrial Fatigue Research Board.)

Errors and mistakes are greatly increased by temperatures above optimum. N. H. Mackworth in "Effects of Heat on Wireless Operators" showed that in long period of code reception errors increased from an average of 12 per hour to more than 90 per hour as effective temperature was increased from 79 to 97° F. (Reference: British Journal of Industrial Medicine, 1946.)

'Heat, Humidity Aggravate Labor'

Industrial experience has shown that heat and humidity can aggravate labor difficulties. At least one major manufacturer has determined from experience that the incidence of grievances and other industrial unrest increases sharply when the effective temperature exceeds a certain level. They have made it a practice to watch the effective temperature. When it reaches the "emotional boiling point" they caution foremen to handle their men with kid gloves.

'Can Up Production'

Industrial comfort air conditioning can increase production. People working together on any task soon develop a rhythm or pace. You have all observed this.

You also know that this rhythm or pace is closely related to the physical demands of the job. Although the physical demand rarely ever determines the pace alone, it frequently is responsible for setting the limit on the maximum to which the pace can or will rise.

It's a matter of common experience that this customary pace is usually set by a group at a level that will permit maintenance of the pace even under adverse conditions such as heat, humidity, and stress.

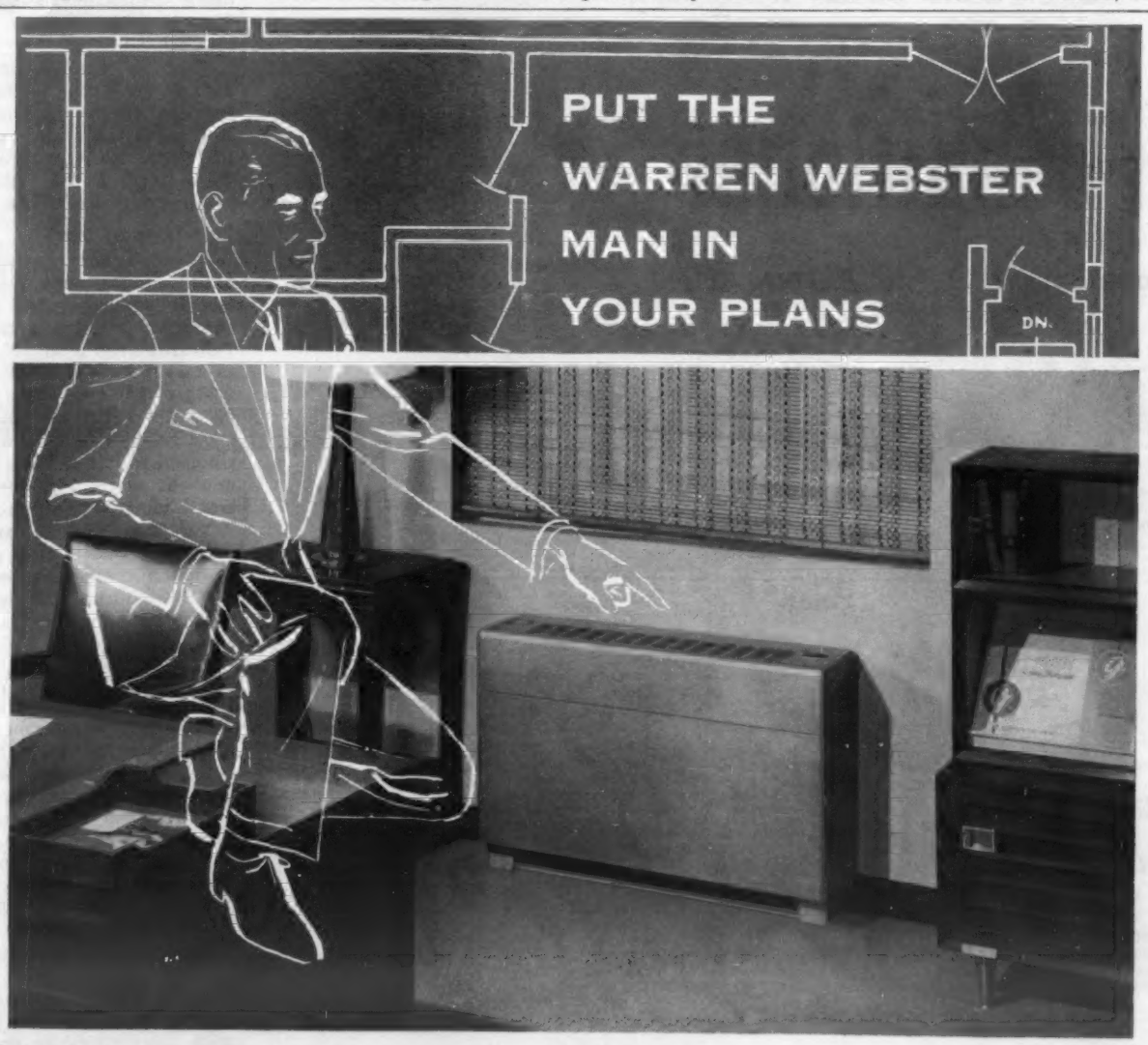
Adjustment to heat and humidity is usually made by slowing the pace down to one that can be maintained year around. This is quite expensive since it puts a ceiling on production the year around in cool as well as hot weather. Unfortunately this is a most common and human occurrence. Comfort air conditioning can pay off all around the calendar.

I have used the words "comfort air conditioning" and you may have reached the conclusion that air conditioning is primarily for the psychological effect on the industrial worker in spite of what we have said about quality, safety, industrial relations, and productivity.

These effects are not a matter of comfort or discomfort— and consequent desire to work —they are the basis of physiological changes of major importance. I am indebted to Dr. L. P. Herrington, Director of Research at the John B. Pierce Foundation of Yale university, for insight in this problem.

Dr. Herrington provided me with a considerable amount of source material for this talk. He has conducted extensive research on the effect of thermal environment on human action.

(Continued on next page)



The beautiful Riviera is practical, too . . .

Here, in the beautiful Webster Riviera, you get modern HYDRONICS at its peak of comfort and practicality. Same distribution piping, winter or summer . . . heats *and* cools with water . . . no ductwork, ever . . . individual room control . . . and handsome cabinets that harmonize with decor in any hotel, motel, apartment, hospital, clinic, office, or home.

Now, with the Webster Riviera, you can combine year-long comfort in a central system . . . easily converted for winter or summer operation. Wide choice of vertical, horizontal, or concealed-type cabinets in five capacities from ⅓ to more than 1½ ton cooling capacity.

For luxury comfort at an economy level, get the Riviera facts from your Warren Webster Man. Call him today . . . or write for Bulletin B-2001. Warren Webster & Company, Camden 5, New Jersey. Since 1888. Offices in principal U.S. Cities and Canada.

WEBSTER'S FINEST PRODUCT

the Warren Webster Man

WARREN WEBSTER

HEATING . . . COOLING

(Continued from preceding page)

He points out that in exposure to heat, the skin blood vessels may be swollen with blood moving so rapidly that at least half of all the blood pumped to the heart goes directly to the skin and back to the heart.

'Heat Depresses Mental Functions'

In short, this blood short circuits the brain, muscles, and other vital organs and acts solely as a radiator fluid. This explains why heat stress is a great strain on the heart and why our mental functions tend to be depressed on hot days.

There is abundant evidence that the body's need for preserving the proper internal temperature is so great that it will, if necessary, over-ride all voluntary effort. We have all observed that heat has a strong depressing effect on both mental and physical effort. The languor and lassitude of the tropics is no joke; nor is it an illusion. (Reference: Dr. L. P. Herrington "Temperature and Human Action" Yale Scientific Magazine, November 1956.)

It isn't easy to provide optimum working conditions for all the people working in a factory, or even a major portion of them. There are great differentials in their rates of physical activity; differentials in the amount of air movement in their vicinity; differentials in the heat radiating equipment near them. All of these effects are in addition to the fact that a factory as a whole tends to be warmer than the outside air.

We have no reliable typical test data for industrial establishments, but I think it is safe to assume that a factory has both greater thermal storage and greater internal heat generated than the average residence. A fairly typical residence will average 5 to 7° higher in temperature than the outside air.

So we start off with conditions substantially more unfavorable than outside air conditions. This is accentuated by the fact that most factories are closed at night retaining the heat, but hot outside air is circulated through them during the hot portion of the day. On the other hand the people who work within a factory are generating large amounts of heat.

'When Heat Stress Usually Occurs

According to Dr. Herrington, if we consider 72° as normal for light activity, a person so engged in light activity would begin to feel heat stress at around 83°. But a person engaged in moderately heavy work would begin to feel heat stress at temperatures as low as 59°, and will nearly always require a temperature below 70° to prevent some heat stress. (See Table A.)

Here we see our problem. We have people who require a lower than normal temperature to be able to have optimum work conditions, and yet we have an environment that often has higher than average temperatures.

Nature has provided man with a very effective temperature control mechanism but this control mechanism is dependent for most of its effect on the ability to evaporate moisture.

Again, according to Dr. Herrington, at 100% humidity the tolerance of the human being—even at rest—is only about 90°. At 100% humidity and 98° man can survive only a short time. However, with low enough humidity a man can tolerate temperatures as high as 235° for 10 minutes. Temperatures as high as 140° or more can be tolerated for a considerable period of time if activity is kept low and humidity is low enough. (Reference: L. P. Herrington "Effect of Thermal Environment on Human Action," 1952.)

Perspiration is being evaporated at all times in the human body. When the air is very dry and cold the water table of the skin is very low and it is under these conditions that the skin becomes dry and sometimes chapped.

Under normal conditions the skin does not appear moist, but it is soft and pliable and a certain amount of evaporation is taking place. As temperatures rise, or humidity increases, the difficulty of evaporation becomes greater and the water table (perspiration) of the skin moves closer to the surface until finally it becomes visible moisture.

A person may be uncomfortably warm without visible perspiration. Heat may slow down a man's rate of activity, adversely affect his coordination, and act as a depressant on his spirits, before visible sweating takes place. However, when visible perspiration appears on the face of the people engaged in any form of work, you can be reasonably sure that the normal involuntary reactions of the body are beginning to exert a very powerful deterrent upon increasing or even maintaining the rate of physical activity.

(To Be Continued)

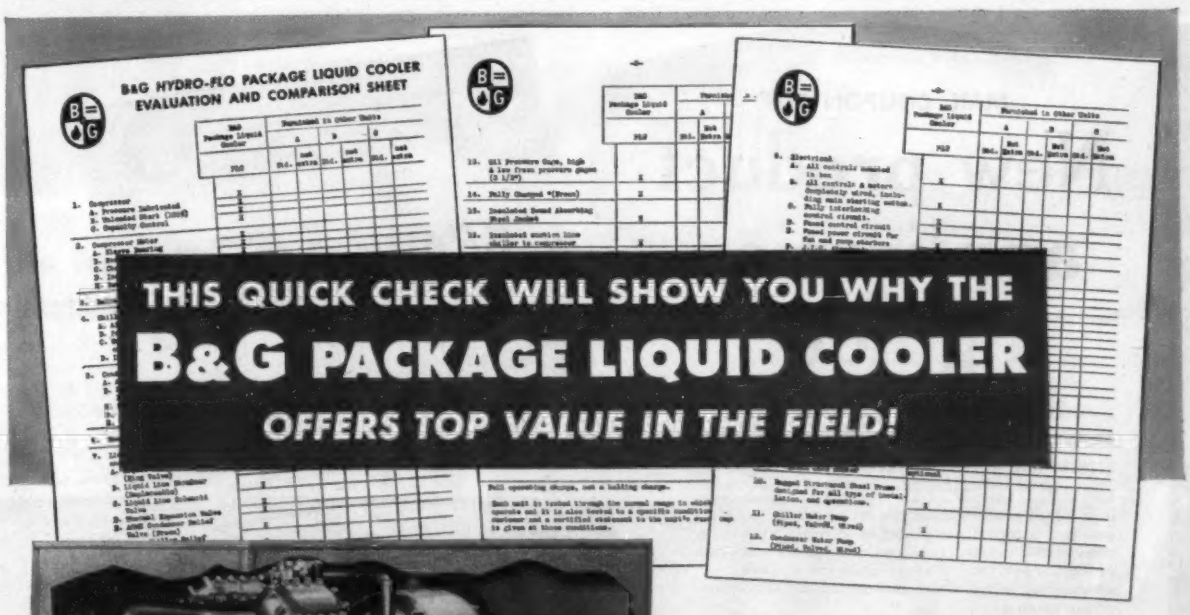
Table A†

Design Temperatures (Indoor) Producing Equivalent Grades of Warm, Normal, and Cold Stress at Successive Levels of Work.

	Light Activity	Moderate Work		
	A	B	C	D
	361 B.t.u./hr.	496 B.t.u./hr.	595 B.t.u./hr.	694 B.t.u./hr.
Level of Thermal Stress				
WARM				
(Grade 1 Heat Stress)				
T Skin = 93.3° F.	83.0° F.*	68.7° F.	63.8° F.	58.9° F.
NORMAL				
(Optimum Condition)				
T Skin = 90.2° F.	72.0° F.	61.5° F.	56.5° F.	49.3° F.
COLD				
(Grade 1 Cold Stress)				
T Skin = 81.9° F.	55.0° F.	42.1° F.	37.1° F.	32.2° F.

*Air and wall temperatures equal, air movement 15-20 ftm.

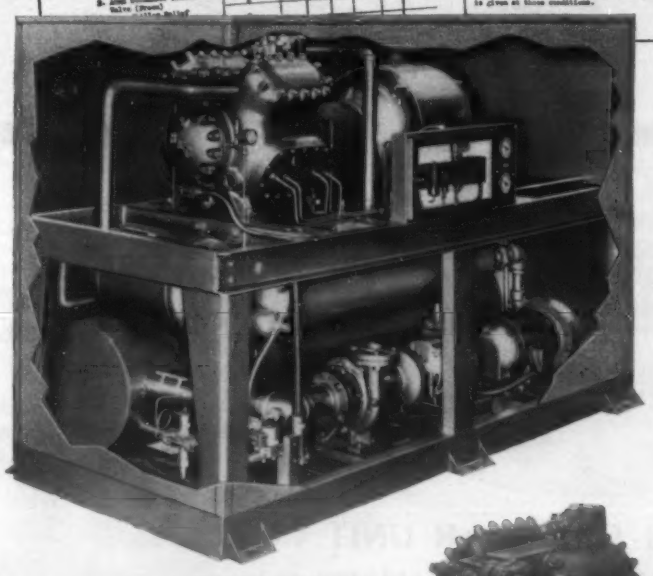
†By the application of Equation 5, from ASME Paper No. 57—SA-5 "Bio-technical Problem of the Human Heat Exchanger" by L. P. Herrington, the design temperatures for four work rates may be calculated either for a normal condition of comfort or as a compromise for tolerable levels of heat or cold stress.



THIS QUICK CHECK WILL SHOW YOU WHY THE

B&G PACKAGE LIQUID COOLER

OFFERS TOP VALUE IN THE FIELD!



EQUIPPED WITH B&G PRODUCTS THROUGHOUT

The only unit of its kind with all major components designed, built and guaranteed by one manufacturer.

B&G COMPRESSOR

B&G COMPRESSOR MOTOR

Send for a set of Evaluation Charts as illustrated above—compare the *standard* equipment of the B&G Package Liquid Cooler with that of any other. You'll see for yourself that *you can buy B&G quality at smaller installed cost!*

With this *completely packaged* unit, costs which might otherwise be charged against the job are eliminated. For example—

No inside wiring costs. The finest electrical controls are furnished, *completely wired and fully interlocked!*

No inside piping costs. Both chiller and condenser pumps are sized to specification, mounted, piped and electrically interlocked.

No structural framing costs. All equipment is mounted on a rugged steel frame—a permanent base.

No metal forming costs. Standard equipment includes a heavy gauge steel jacket with sound-deadening undercoating and Hammerloid finish.

No insulating costs. The suction line and heat exchanger are fully insulated.

No testing costs. Fully tested under specified operating conditions and also under varying load conditions. All valves adjusted and balanced.

No extras to buy. Standard equipment includes gauges, compressor motor, all belts, driving sheave, compressor fly wheel, increment start, full sized heat exchanger and full operating charge of Freon.

Capacities: Ten units from 7½ to 75 tons

BELL & GOSSETT
COMPANY
Morton Grove, Illinois
Canadian Licensee: S. A. Armstrong Ltd., 1400 O'Connor Drive, Toronto 16, Ontario

BELL & GOSSETT COMPANY, Dept. FG-47, Morton Grove, Illinois

Please send complete file of data on B&G Package Liquid Coolers.

*Name*_____

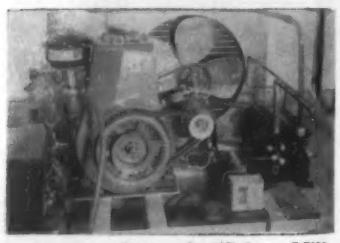
*Firm Name*_____

*Address*_____

*City*_____ *Zone*_____ *State*_____

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*

Bulk Milk Tanks Have Remote Condensing Units



A new line of "Solar Milk Minder" direct expansion bulk milk tanks, "365 Series," with remotely-installed condensing units driven by liquid or gas-operated engines have been announced by Solar Permanent Co., Div. of U. S. Industries, Inc., Dept. AC&RN, Tomahawk, Wis.

New models combine an internal combustion engine with the standard Milk Minder automatic control systems. No more space is required than for electric-driven condensing units of similar capacity, the company explained.

Maintenance of proper milk temperature is completely automatic. If the temperature rises, a thermostatic control actuates the starter which is battery powered for complete independence from outside power.

Slide-Chart Calculator Aids Figuring Heat Gain

Precise detailed data on heat gain through windows can be obtained by using a specially designed slide-chart calculator announced by Reflectal Corp., Dept. AC&RN, 310 S. Michigan Ave., Chicago 4, the company claims.

Lengthy computations and time consuming reference to printed tables are eliminated with the new calculator the manufacturer said.

A-B Introduces Glass-Top Cabinet

New glass top refrigerated merchandising cabinet, largest of three available for 1958 in the "GT" line, has been introduced by Anheuser-Busch, Inc., Refrigerated Cabinet Div., Dept. AC&RN, 721 Pestalozzi St., St. Louis.

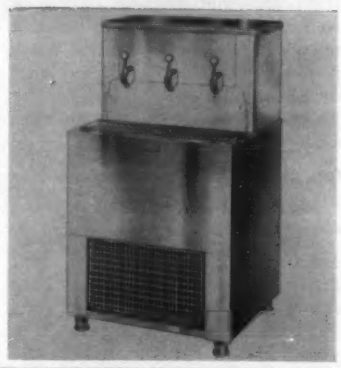
Featuring one-piece top and track assembly, easy-rolling aluminum lid, full-width handles, and improved aluminum refrigerated plates, unit has wire shelves as standard equipment and new U-shaped wire-and-tube condenser.

Soda Bar Dispenses Three Different Flavors

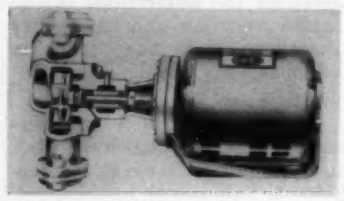
Now offering six all new, "SBX" series soda bars is Everfrost Sales, Inc., Dept. AC&RN, 14815 S. Broadway, Gardena, Calif.

Designed to dispense three different flavors of ice cold carbonated drinks at low cost, the all dry cold wall refrigeration system chills 6 gals. of syrup plus carbonated water to 36° temperature.

Unit has three 2-gal. low temperature syrup tanks with positive flow control and fast acting faucets and a refrigerated carbonator with 90 g.p.h. water pump. A large chipped ice compartment is provided.



Announces Domestic Hot Water Circulator



Addition of a domestic hot water circulator has been announced by Kam Products Corp., Dept. ACRN, 239 Alabama Ave., Brooklyn.

Designed to permit use of smaller size piping, the circulator is engineered for either vertical or horizontal installations. Boiler location has no effect on the positioning of the circulator which can be installed in the supply or return main.

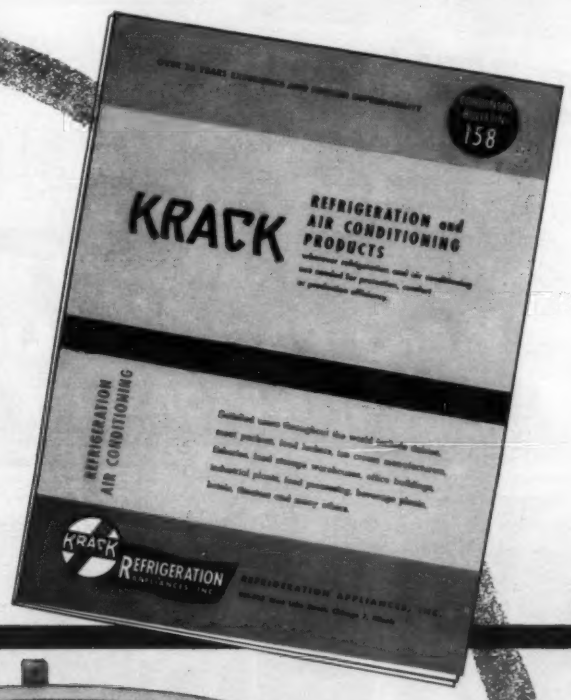
Powered by a rubber mounted self-aligning overload-protected motor the circulator is designed for quiet, smooth, and trouble-free operation, it was stated.

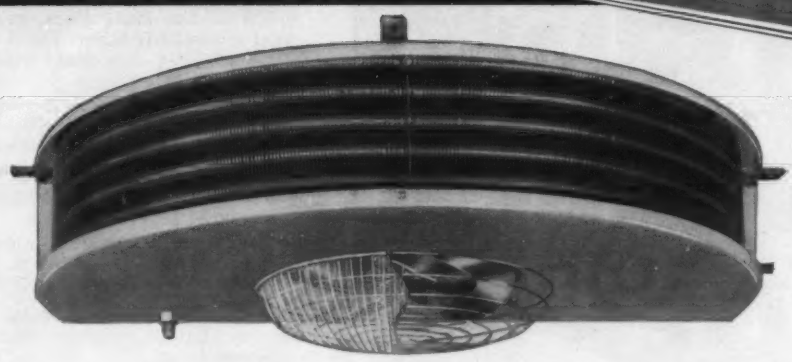
MAIL COUPON FOR

New product application guide

. . . helps you to quickly select the exact type, size and capacity unit for each requirement.

KRACK'S varied line also offers you advantages in product performance and lower prices to help you bid competitively and land more jobs. One convenient source gives you a complete selection of high or low temperature units for storage, processing, commercial, industrial and residential requirements.





"FROST-FREE" SEMI-CIRCULAR UNIT COOLERS

save space in walk-in refrigerators and cold storage rooms

* 360 to 1075 BTU/hr at 1° T.D.
* Electrostatic air filter
* Underwriters' Laboratories Approved
* Hinged drain pan for easy access

KRACK REFRIGERATION APPLIANCES INC.
Refrigeration Appliances, Inc.
901 West Lake Street
Chicago 7, Illinois

Manufacturers of freon, ammonia and flooded ammonia heat transfer equipment

AIR COOLED CONDENSERS

for refrigeration and air conditioning

* 1 to 50 tons
* "Whisper-quiet" operation
* Available with multi-circuiting
* Field-tested winter controls

Send FREE Product Application Guide to help me quote competitively and increase my business.

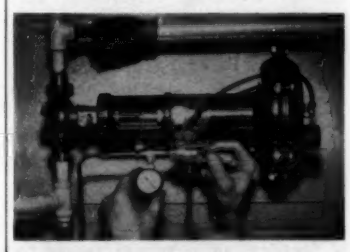
Name_____

Firm_____

Address_____

City_____ Zone____ State_____

6300



Positioning Relay Easy To Install

An ordinary screwdriver and wrench are all that are claimed needed to install a new adjustable positioning relay for accurate control of pneumatic motors and valves, made by Powers Regulator Co., Dept. AC&RN, 3434 Oakton St., Skokie, Ill.

"Sta-Put" relay counteracts the effects of friction and load factors which prevent a pneumatic motor or valve from responding properly, the firm said.

Half the size of predecessor models, the relay attaches directly to the controlled motor or valve. No drilling or fabricated parts are required.

Develops 'Practical' Pipe, Tube Joint

"Conoseal" pipe and tube joint is claimed to provide a practical solution to problems of connecting pipe or tubing of dissimilar metals which may be subjected to extreme temperatures and pressures, according to its producer, Marman Div., Aeroquip Corp., Dept. ACRN, 11214 Exposition Blvd., Los Angeles 64.

Conoseal joint is designed to maintain a leakproof seal under the most adverse operating conditions in the chemical and oil industries. It lends itself to installation where working quarters are tight, requiring only two bolts to put together or take apart, it was claimed.

Combination Cooler Gives Hot, Cold Water

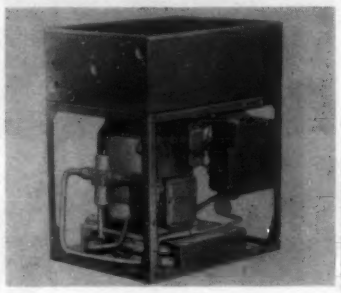
"Cool-R-Frig" is a new combination of a refrigerator built into a water cooler that gives both cold drinking water and 185° F. water for hot drinks inside the office. It is produced by Sunroc, Inc., Dept. AC&RN, Glen Riddle, Pa.

A departure from standard design, Cool-R-Frig incorporates a full length, side-opening door for easy access and maximum convenience. A four-way combination unit, it is a full-sized bottle cooler. Features claimed by the manufacturer: a complete refrigerator with more than 1 cu. ft. of storage space; freezing compartment with two aluminum ice cube trays; door recessed for extra refrigerated storage; built-in unrefrigerated compartment for storage of instant hot-mix products inside the cooler cabinet.

Improves Water Chiller In Three Sizes

A new, improved water chiller has been announced by Heating & Air Conditioning Div., National-U. S. Radiator Corp., Dept. AC&RN, P.O. Box 1047, Johnstown, Pa.

New chiller is available in three sizes, 2, 3, and 5 hp., with either air or water-cooled condensers. Called the "Capitolaire" model CW (CA when equipped with air-cooled condenser), it is the company's latest air conditioning adaptation of heating systems that are packaged and preassembled.



Adds Industrial Insulation Line

Addition of a complete line of glass fiber industrial insulating products to its insulating materials has been announced by Eagle-Picher Co., Dept. AC&RN, Cincinnati 1.

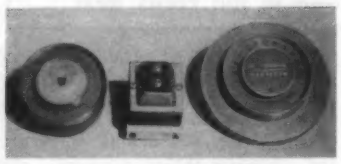
These new glass fiber insulation products will be marketed nationally by Eagle-Picher under the name "Superglas." Designed largely for use on piping, ducts, and industrial equipment, these insulation materials number 12 distinct products.

Offers Two Water Cooler Stations

Announcement of two new self-contained water cooler stations has been made by Lern, Inc., Dept. AC&RN, 1455 W. Hubbard St., Chicago 22.

Both units offer the food operator a full-fledged water cooler plus handy storage in just 24 in. of space. Models serve up to 200 persons an hour, the company claims. "Temp Rite" chillers have 10 to 15 g.p.h. capacity.

A special feature of these coolers is an adjustable shelf that may be raised or lowered to desired height; provides a handy spot for glasses, cups, napkins, etc.



'Sentinel' Regulates Residential Comfort

An economical thermoramic outdoor "sentinel" system for regulating home warmth and comfort in advance of outside temperature changes has been developed by General Controls Co., Dept. ACRN, 801 Allen Ave., Glendale, Calif.

Called "thermoramic control," the system is a simple, thermal-electric, three-unit package that contains no moving or wearing parts and can be installed with any new automatic heating system. It requires no maintenance, the company said.

The sentinel prevents discomfort caused by loss of body heat to outside walls and windows in falling temperatures.

Designs Air Conditioners To Save Space

Compact self-contained water-cooled ceiling-mounted air conditioners have been introduced by Typhoon Air Conditioning Co., Div. of Hupp Corp., Dept. AC&RN, 505 Carroll St., Brooklyn 15.

Available in 5 and 8-ton models, the units are designed for space-saving installations in retail stores, etc.

Cabinets for both models measure 57 in. long by 44 in. wide by 32 in. deep. The 5-ton model weighs 845 lbs. and the 8-ton model, 970 lbs.

A service feature permits one man to exchange a compressor, if necessary, in one hour, it is claimed, without costly rigging, expensive ductwork disconnections, or time consuming removal of the unit from the ceiling.

Produces High-Velocity System Duct Sealer

Ducts in high-velocity systems must be absolutely air-tight, so that there is no possible chance of leakage of air, so a sealer has been introduced by Goodloe E. Moore, Inc., Dept. AC&RN, Danville, Ill.

This high-pressure duct sealer, known as "Tuff-Bond #12," has a synthetic rubber (butyl) base. It skins over in two or three minutes and dries overnight under normal conditions. Its adhesion to galvanized iron is excellent and its thermal limits are -30° F. to +200° F. with high resistance.

Break the BARRIER and close the sale

SELL ON TIME COMMERCIAL CREDIT PLAN

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over $200,000,000 . . . offices in principal cities of the United States and Canada

Most of your prospects need their cash reserves and usual lines of credit for current operations. Break through this financial barrier. Make it easier for the prospect to sign on the dotted line by including financing arrangements. COMMERCIAL CREDIT's Refrigeration Plan is backed by many years' experience in your industry—experience in handling financing for thousands of commercial refrigeration and air conditioning installations.

Let us show you how COMMERCIAL CREDIT experience and know-how saves you time and money . . . and helps you close sales with less delay. Call the nearest COMMERCIAL CREDIT office or write COMMERCIAL CREDIT CORPORATION, 300 St. Paul Place, Baltimore 2, Md.

Make your proposals complete . . . include financing with COMMERCIAL CREDIT PLAN

ALMOST AS FLEXIBLE AS A RUBBER BAND

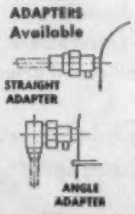
New ROTALOCK VALVES by Primore

Rotalock is a new type detachable valve which allows the refrigeration manufacturer to provide an easy, economical method of meeting individual customer's valve requirements.

- Detachable
- Rotates a full 360
- Locks in any position
- Available with various type Spuds
- Quick field exchange
- Greater Production Flexibility
- Available in all standard sizes—Flare or Sweat

Shipping caps may be ordered so manufacturer can ship equipment minus the valves, thus customer can purchase valves from Primore direct.

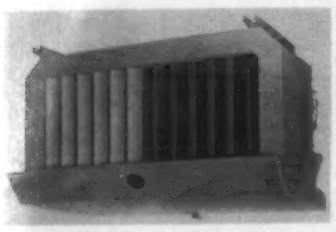
ANGLE and STRAIGHT ADAPTERS Available



Primore Sales, inc.
2460 S. Main Street • Adrian, Michigan

REFRIGERATION designing sales engineering

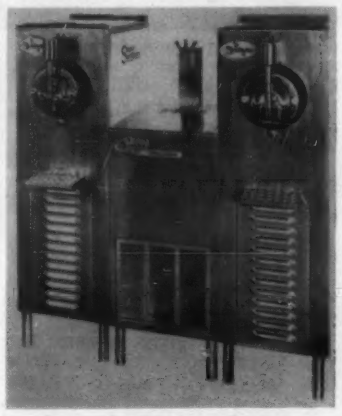
FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*



Markets Larger Unit Cooler

A new, larger unit cooler for big storage applications such as those found in the produce, wholesale meat, and dairy industries has been developed by Refrigeration Appliances, Inc., Dept. AC&RN, 903 W. Lake St., Chicago 7.

Marketed under the "Krack" brand name, the new units feature four fins per inch and split-phase motors on all sizes. In addition, the units help maintain sanitary conditions by eliminating sweating of walls and ceiling.



Soft Drink Dispenser Needs Little Space

High capacity production in a minimum of space is claimed incorporated into a new multiple soft drink dispenser, the "SodaServer," made by Sweden Freezer Mfg. Co., Dept. AC&RN, 3401 17th Ave., W., Seattle 99.

SodaServer occupies a floor space 16 by 20 in. and is capable of producing 300 drinks an hour, the company said.

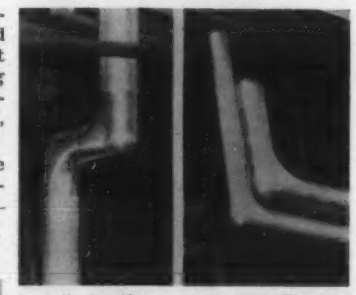
Any three flavored drinks, carbonated and/or non-carbonated, plus carbonated and plain water can be dispensed with the unit.

Jacketing Elbow Fits Most Pipe Sizes

A new type of aluminum jacketing elbow that enables a limited number of units to cover most sizes of insulated piping, is being distributed nationally by Pittsburgh Corning Corp., Dept. ACRN, 1 Gateway Ctr., Pittsburgh 22.

Secret of the fitting, called the "Gasco Humped Aluminum Elbow," is the oversize radius or "hump" that allows its use over several pipe and insulation sizes and allows it to fit long and short radius "ells," it was explained.

Twelve interchangeable sizes of "humped" ells fit over 107 combinations of varying pipe sizes and insulation thicknesses.

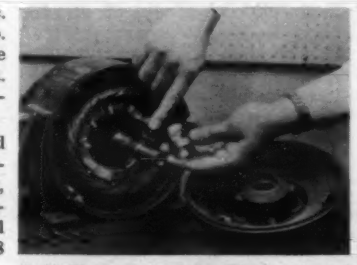


Announces Sleeve Bearing Motor Line

A new line of sleeve bearing a.c. motors from ¾ through 15 hp. has been announced by Reliance Electric & Engineering Co., Dept. AC&RN, 24701 Euclid Ave. Cleveland 17.

The polyphase motors, designed for quiet operation in air conditioning and pumping applications, are available in all standard enclosures for operation on all standard voltages from 208 through 550.

Motors feature a new "Liquimatic" bearing design which employs "Permawick," a patented fluid-fiber material. The material combines with oil to form a fluid mass that is extruded into the bearing cavity.



Packs Refrigerants In Disposable Cans

All its commonly-used refrigerants are now packaged in 1 and 2-lb. disposable "Handi-Cans," it has been announced by Pennsalt Chemicals Corp., Dept. AC&RN, Three Penn Center, Philadelphia 2.

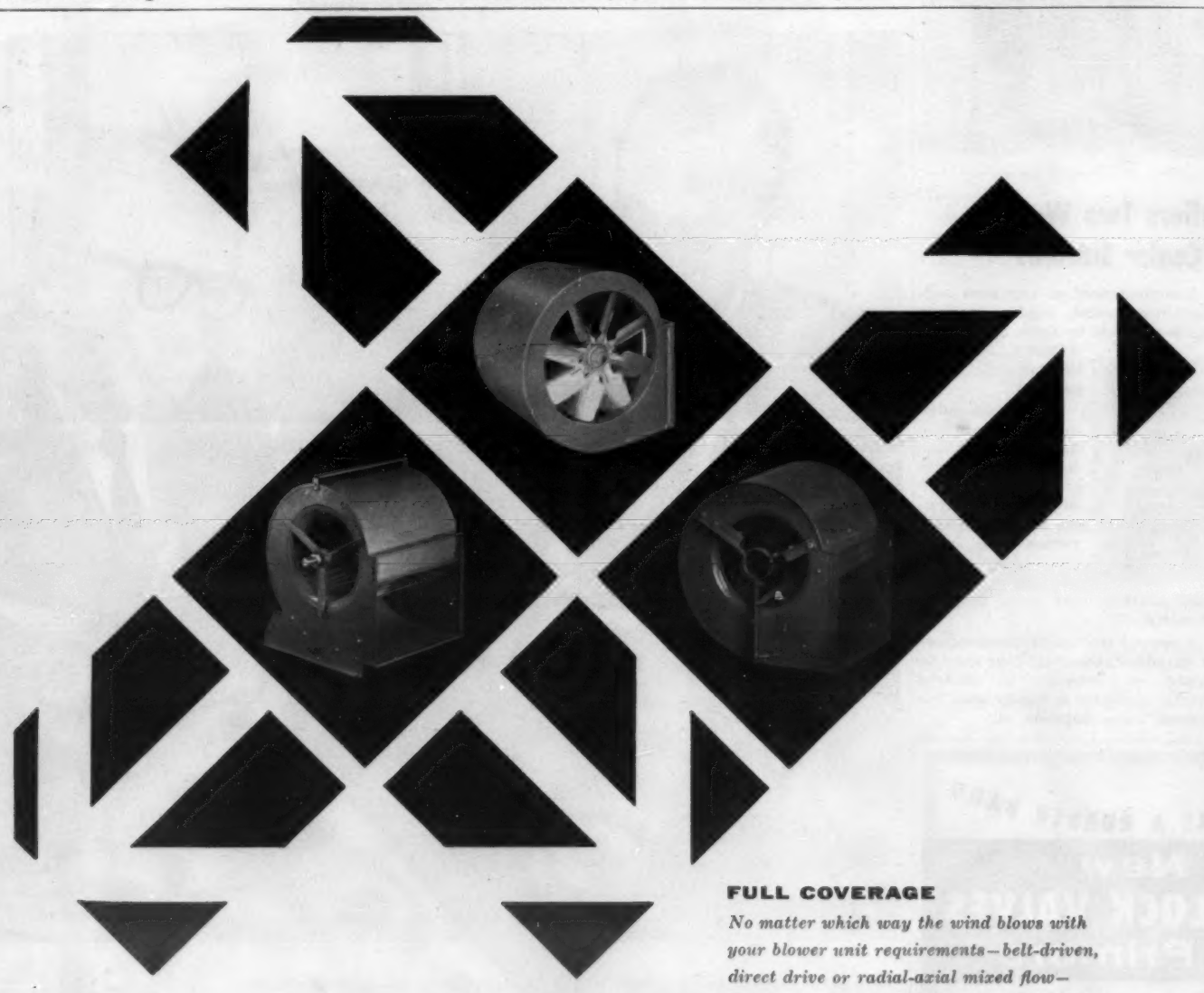
Containers for "Isotrons" now range from the 1-lb. Handi-Can to tank trucks and cars, it was explained. Threaded closure of the Handi-Can is claimed to insure a tight seal and foolproof connection between the container and the unit being recharged.

Develops Failure Temperature Alarm

New electronic "Hi-Lo & AC" failure temperature alarm has been developed by Philadelphia Scientific Glass Co., Dept. AC&RN, RD 1, Box 46C, Paleton Rd., Quakertown, Pa.

Model 124 is claimed to give four-way protection: green light indicates when temperature is in proper range; left red signal lights and buzzer sounds if temperature falls below range; two red signals light and buzzer sounds if temperature rises above range; and if current fails, a different warning buzzer sounds. Sensitivity is claimed to be plus or minus 0.3° F.

Unit is encased in 3½ by 6 by 8-in. box, mounted on wall or panel with only one screw attachment. Uses 110 v. a.c.



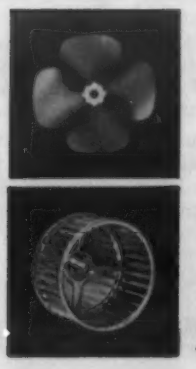
FULL COVERAGE

No matter which way the wind blows with your blower unit requirements—belt-driven, direct drive or radial-axial mixed flow—Torrington has the solution to your problems.

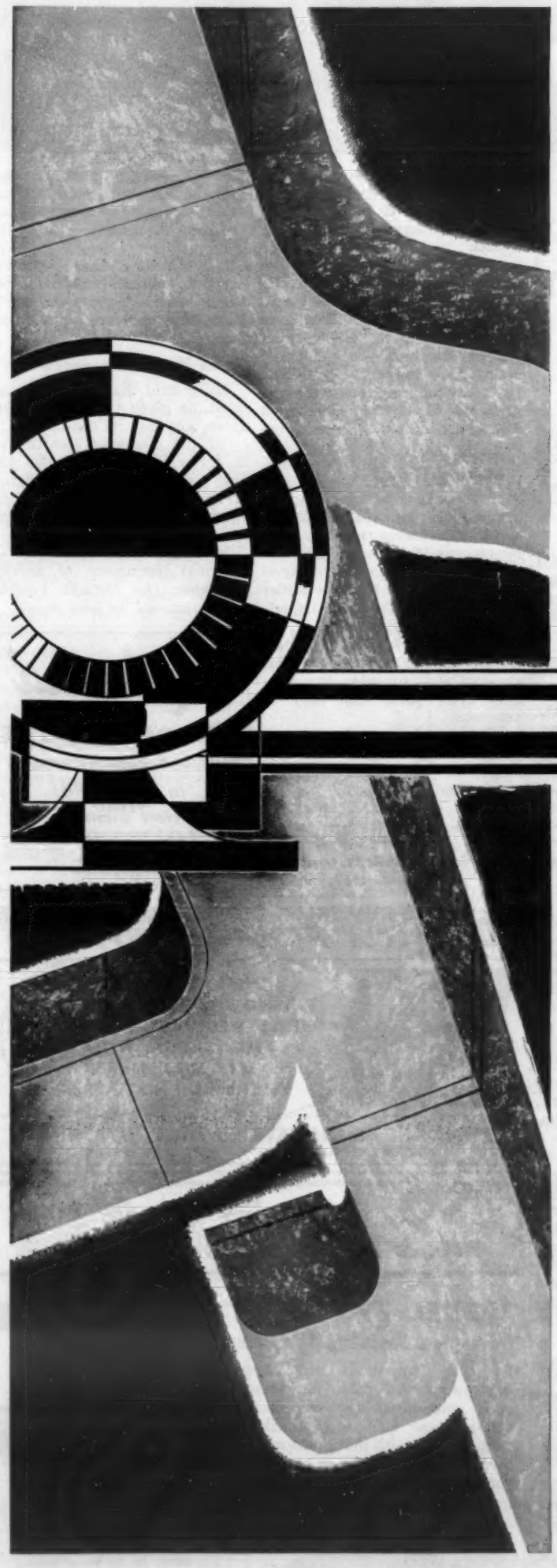
This means complete technical data and the proved-out performance rating on three lines of basic blower unit designs.

In addition to the standard direct drive units and the already famous VariBasic belt driven series, latest and most spectacular addition is the exclusive Radiax unit, combining the optimum performance characteristics of both radial and axial flow techniques.

The result is FULL COVERAGE—the best "problem insurance" you could have.
Talk to Torrington!



THE TORRINGTON MANUFACTURING COMPANY
TORRINGTON, CONNECTICUT • VAN NUYS, CALIFORNIA • OAKVILLE, ONTARIO



Vital!

Timely!

Exciting!

Everyone looks for news about what's going on in the world.

In the field of air conditioning (which includes heating), nearly everybody in the business follows the news in the NEWS.

Air conditioning and refrigeration people are doing more and more heating work. Heating people are getting into air conditioning. And the term, as well as the function, of "air conditioning" is coming into its own as treatment of air "so as to control its temperature, humidity, cleanliness, and distribution—."

AIR CONDITIONING & REFRIGERATION NEWS is the only weekly newspaper which covers the *whole field of air conditioning!* It is the most vital, timely, and exciting publication for your advertising message.

Mr. Heating Manufacturer: Take advantage of this new force in your business. Act now! Plan your advertising in the NEWS—the *weekly* newspaper written to be read on arrival.

AIR CONDITIONING & REFRIGERATION **NEWS**

The Weekly Newspaper of the Industry

RESIDENTIAL — COMMERCIAL — INDUSTRIAL

The leading air conditioning publication with highest paid circulation in the field.

450 WEST FORT STREET
DETROIT 26, MICHIGAN

NEW YORK, 521 FIFTH AVE., MURRAY HILL 2-1928-9, ROBERT M. PRICE.

CHICAGO, 134 S. LA SALLE ST., FRANKLIN 2-8093, AL SCHILDHAMMER.

LOS ANGELES, 4710 CRENSHAW BLVD., AXMINSTER 2-9501, JUSTIN HANNON.

DETROIT, 450 W. FORT ST., WOODWARD 2-0924, JOE SULLIVAN.

'Be a Professional Man'

'It Takes Practically an Engineer Now To Service an Oil Burner So Treat Job as Such'

By George M. Hanning

DETROIT — By promoting heating service to professional status, the heating contractor can charge a $10 minimum rate for a service call and make money on his service operation.

Tony Miller, head of the Miller Heating & Air Conditioning Co. of Hamtramck, told how he does it at a recent meeting of the Detroit Warm Air Heating Association.

In a show of hands, Miller was revealed to have by far the highest minimum rate for service of any of the 42 contractors participating. All charged $5 or more an hour. Thirty-four charged more than $6 an hour, 15 more than $7 an hour, and two more than $8 an hour.

A few said they charged a minimum rate of $3.50 or $4.50 for the first half hour, if the problem were some simple adjustment or changing a fuse. For old customers, they even performed this simple service without charge.

Why does Miller, who operates in a strictly working class area, charge $10 an hour for the first hour and $6.50 for each hour thereafter?

Because, he indicated, he firmly believes his service is worth that much to the customer and because it has proved to be a profitable operation.

"At one time, I charged $3.50 an hour for service, too. I found myself working hard all the time and without any profit at the end of the year," he related.

'Work Less Hard, Make More Money'

"A friend advised me to quit killing myself by working for nothing. He suggested I charge $7 an hour. I did. I lost 30% of my customers, but I worked less hours and made money. I jumped it up to $10 and work even less and make more.

"If you work cheap, you will work hard and die a poor man. But each man knows what he is worth. If your service is only worth $5, charge $5."

Miller asserted that he believes his service is worth $10 an hour because when his serviceman leaves a job, the heating system works properly.

'Know Functions or Don't Make Calls'

"Today," he said, "this service business is becoming a profession and should be treated as such. It takes practically an electronic engineer to service an oil burner any more.

"If the serviceman doesn't know how the component parts of the heating system work, what function they perform, how to take a CO_2 test, use a tachometer or an amprobe, he has no business making service calls.

"Even if the call merely requires changing a fuse, we still charge $10. Our man doesn't just change the fuse. He checks to find out why that fuse blew. He checks over the entire system by instrument to make sure that it is operating properly and the customer will have comfort. When he leaves, the system works.

"If a customer calls in the next day and says his equipment isn't working, the same man goes back. If the trouble is something that he was working on, the customer does not get charged for the call. If we don't get paid, the serviceman doesn't get paid. Even if he has to go back four times."

Charges Minimal Moving Time Fee

Miller says he charges the customer from the time the serviceman leaves the shop until he returns, or moves on to the next call. However, such travel time is minimal because Miller does not accept service calls outside a three-mile radius of his shop. (This is a highly concentrated population area). Time charged also includes any running after parts that may be necessary.

"The serviceman has to be paid for this time," Miller believes, "so the customer should be charged for it."

Miller emphasized that his servicemen check the ailing heating plant with instruments. "They don't just look at it and guess," he commented. Before replacing any part, they check out the system to make sure that that part is defective and the one that is causing the trouble.

He indicated that defective parts are double checked after being returned to the shop to make sure they are actually defective.

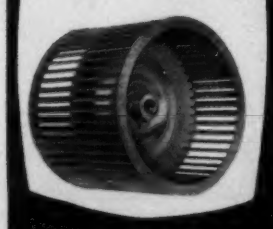
Gives Year Guarantee

Miller said that on new equipment, he gives a full year guarantee, not just 90 days.

"If the customer has to call in three times for service the first year," he said, "I figure there must be something wrong with the installation. I go out and check it myself then."

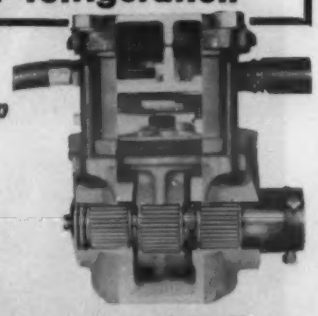
In their session devoted to an informal discussion of service problems, the Detroit heating

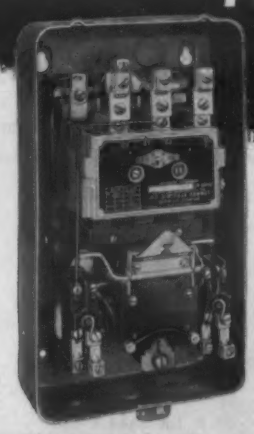
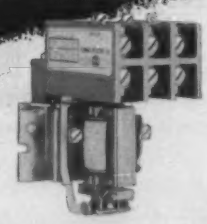
(Concluded on next page)

NEW!

International OIL BURNER COMPANY
a leading manufacturer of heating and ventilating equipment
uses
REVCOR'S NEW DOUBLE INLET BLASTAIRE BLOWER WHEELS
because . . . Revcor's New Double Inlet Blower Wheels give them more pressure and volume while utilizing less space!
REVCOR SINGLE AND DOUBLE INLET BLASTAIRE BLOWER WHEELS ARE USED BY OVER 60% OF THE ROOM AIR CONDITIONER MANUFACTURERS!
Write For Technical Details
Revcor, INC. 251 EDWARDS STREET CARPENTERSVILLE, ILLINOIS

Redmond
MICROMOTORS
One of largest stocks in the world!
MARVIN L. "FERGIE" FERGESTAD FACTORY DISTRIBUTORS
CYCLO-FREEZE CORP.
6318 Cambridge, Mpls. 16, Minn.
West 9-6794

Does Your Appliance Carry This Seal of Quality?
THE MOTOR USED IN THIS EQUIPMENT IS PROTECTED AGAINST OVERLOADS, LOW VOLTAGE, OVER-VOLTAGE WITH A MIGHTY MITE THERMAL PROTECTOR
MECHANICAL INDUSTRIES PRODUCTION CO.
223 ASH STREET • AKRON, OHIO

ACE, the quality line for air conditioning and refrigeration
MODEL 77
Diaphragm Descaling Acid Pump
Descaling compounds can't affect this pump! All parts in contact with compounds are completely acid-resistant. Can be supplied as portable unit with pump and motor mounted on sturdy base and with convenient carrying handles.

Plus a complete line of centrifugal pumps
. . . sized to fit your needs. ¼ H.P. thru 10 H.P. Easy to install and compactly built. Advanced features include exclusive baked-on lifetime finish to enhance appearance and resist corrosion, John Crane mechanical seal, and all-bronze one-piece impellers. Continuous duty motor, 1750 rpm or 3450 rpm.
Orders shipped the SAME DAY received.
ACE PUMP CORPORATION
140 HERNANDO ST • MEMPHIS, TENN.

FURNAS ELECTRIC
CONTROLS HELP YOU REDUCE COST AND SPACE REQUIREMENTS

Magnetic Starters in 10 sizes to 100 hp. Furnas starters for control of high horsepower compressors offer the exclusive Furnas "in-between" size starters with dual voltage magnet coils.
For full information write for Bulletin 5610, 1111 McKee St., Batavia, Ill.

Furnas contactors feature 20, 24, 30, 35, 40, and 50 ampere sizes to match starter requirements. Silver cadmium oxide contacts for longer life. Floating armature insures quiet operation.
A43
FURNAS ELECTRIC COMPANY
BATAVIA, ILLINOIS
SALES REPRESENTATIVES IN ALL PRINCIPAL CITIES

Detroit Service Rates--

(Concluded from preceding page)

contractors also revealed, in a show of hands, that half of them charged a different rate for night or weekend service than for day service. The determining point as to whether the day or night rate applies is the time the call is received, not the time the serviceman actually makes the call.

Few Knew Service Operation Cost

In another show of hands, only a few admitted they knew what their service operation was costing them or even kept separate service cost records. Many more, however, did keep track of installation costs.

Other questions that aroused some discussion were the capability of office girls to classify service calls, what to do about the c.o.d. customer who wants credit, and whether or not the customer should be charged for the time spent in chasing parts.

Most contractors present seemed to feel that the customer should not be charged for time spent in chasing parts. They admitted, however, that they would need a truck the size of the meeting hall to carry all the parts that might be needed on a call.

Miller and others, however, contended that by attempting to determine the nature of the trouble when the service call is received, it is possible in most cases for the serviceman to take with him all the parts he might need for a particular call.

'Ask Questions, Reduce Calls'

Al Keats of King Cole Heating & Cooling Corp. pointed out that a lot of unnecessary and no-charge service calls can be eliminated by training the telephone girl to ask a few simple questions when a complaint is phoned in.

Five questions are typed out and rest directly in front of the telephone so they remember to ask them, he said. They are:

1. Are your air filters clean?
2. Did you check the fuses?
3. Is the switch on?
4. Is the thermostat set higher than room temperature?
5. Did you press the reset button?

Another member of the audience commented that one contractor had these questions posted on the furnace along with his identification tag. It stated that a service call cost so much per hour and would be charged if these items had not been checked.

'Man or Woman'

The question of whether a girl or man should take calls for service brought a mixed reaction. Some felt that customers lacked confidence in a girl and asked to speak directly with a serviceman. Others felt that if the girl were trained as to what to query the party on, this confidence is immediately restored.

The question of what to do on a c.o.d. call when the customer finds she does not have enough money to pay the bill brought the helpless reaction that there is nothing to do but give her credit.

But Harold Bowie of Gas Burner Service Co., moderator of the discussion said he has the serviceman call the office. While the serviceman is on the telephone, he checks the customer's record with the merchants credit bureau. If the record is good, credit is extended. But if it is not, any parts that have been installed are removed and returned to the office.

"You have lost the money for the time spent, there is no need to lose the parts, too," Bowie argued.

Another contractor adds 30 cents to the bill if the customer asks to send a check.

Two Weeks After Forming

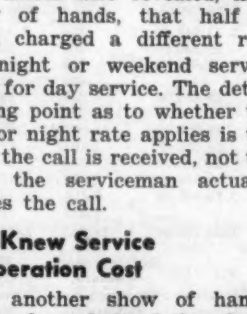
Wis. Group's Model House Creates Heating-Cooling Advertising

MILWAUKEE — Just two weeks after the Wisconsin Better Heating-Cooling Council was formed, the group 1) exhibited a hydronic baseboard heating system to over 100,000 people; 2) made an appearance on television; 3) distributed over 8,000 consumer booklets; and 4) staffed a prominent home-builder's model house with heating experts at the invitation of the builder.

How come? Well, as Wisconsin BHC's President John W. McIntosh (National-U.S. Radiator) explains it, the hydronics group offered a baseboard heating installation to Mid-Towne Realty Co., which had the job of erecting a life-size model house in the Milwaukee Arena for the city's Home Show in March. Sponsor of the house was the *Milwaukee Journal*.

During the nine-day show, over 100,000 visitors traipsed through the house which was staffed each day by a WBHC member. Over 8,000 "Heart of the House" booklets were distributed, and when a local television show visited the model house, WBHC director Frank Hackett (Bell & Gossett) appeared on the program as spokesman for hydronic heating.

Mid-Towne Realty reportedly was impressed with family interest in hot water heating systems.



NEW MADDEN
CHARGING AND TESTING MANIFOLD

For testing and purging both high and low sides. Helps servicemen find trouble quickly. Features Teflon seat, and requires only light hand pressure for positive shut-off.

Plus our complete line of Wimco Tools: flare tools, tube benders, tube cutters, bending springs, etc.

SEE YOUR **MADDEN** WHOLESALER

MADDEN BRASS PRODUCTS COMPANY
AURORA 6, ILLINOIS, U.S.A.
EXPORT: Ad Auriema 69 Broad St., New York, N. Y.

Why suffer with EXPERIMENTS when you can be SURE with tested, tried and proved ROUND OAK heating and air conditioning

TESTED...

Efficient, long-lasting Round Oak comfort equipment is built with know-how gained from more than 50 years of experience. Every new or improved Round Oak design is proved by actual "in-the-home" installations.

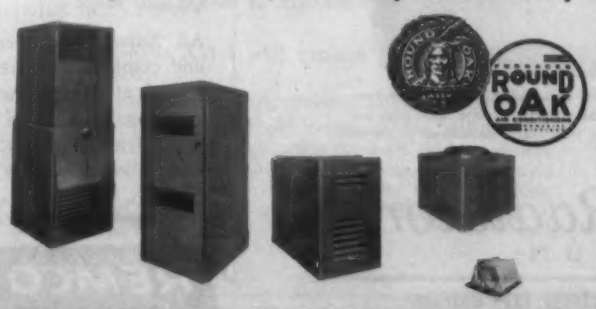
TRIED...

Home buyers have learned that Round Oak is a name they can depend on for low operating costs and minimum service requirements. From years of experience, Builders and Financing Agencies know that Round Oak users always get full value from their investment.

PROVED FOR PROFITS...

Your installed cost is always low with factory-assembled Round Oak equipment. And with Round Oak quality and easy-to-service design, your cost of first-year service liability is "peanuts." Obviously you end up with greater *net profit*.

If you're fed up with experiments, try a SURE thing . . .



ROUND OAK

Round Oak Co., Inc., Dowagiac, Michigan

Gentlemen: No, I don't want to suffer with experiments. So please send me full information on Round Oak complete line of performance-proved heating and air conditioning equipment.

NAME_____

FIRM NAME_____

STREET_____

CITY_____ STATE_____

National Heating & Cooling Sales Assn. Established 'To Boost Ethical Standards'

NEWARK, N. J.—Formation of a new organization of qualified heating and cooling sales personnel" was announced here recently.

Called the National Heating & Cooling Sales Association, Inc., the organization has been established in the interests of "the betterment and advancement of the heating and air conditioning industries" throughout America, according to the announcement of the new association.

The association is "dedicated to the principle of ethical sales practices, improvement of sales methods, and establishment of high sales standards through sales education of members," it was explained.

Officers were listed as follows: President, Walter Blake, Stewart Warner, Winkler Corp.; vice president (unnamed); corresponding secretary, Jack Maxwell, Sun Ray Burner Mfg. Co.; financial secretary, J. Fletcher Creamer, J. Fletcher Creamer & Sons; treasurer, Joe Pinter, Spencer Heating Co.

Board of directors includes Frank Kessler, Liberty Fuel Oil Co., chairman; Maurice Smith, Stewart Warner, Winkler Corp.; Daniel Gelber, Oil Heat Engineering Co.; Sam Jaffe, West Side Plumbing Supply; and Fred Flash, Town Engineering Co.

The group has not yet established a permanent headquarters. However, the official address of the association will be determined by May 1 at which time public announcement will be made, it was further pointed out.

A spokesman for the organization said membership requirements include a basic qualifying background of at least five years' sales experience in the heating or cooling field, and all applicants must be found acceptable by a screening committee.

The spokesman added that credit for creation of the association belongs to Frank Kessler "who conceived the original idea, recruited the charter members, helped write the regulations, and, in general, sparked the entire effort."

Detailed information about the association's aims, programs, and membership requirements will be available at the NHSCA's exhibit during the National Oil Heat & Air Conditioning Exposition June 9-12 in New York City's Coliseum, it was noted.

Electric Heating Cooling Sales In Chattanooga

1957 SALES

	Air Conditioners Units	Air Conditioners Sales Price	Home Heating Furnaces & Heat Pumps Units	Home Heating Furnaces & Heat Pumps Sales Price	Home Space Heaters Units	Home Space Heaters Sales Price
January	26	$ 10,760.00	10	$ 11,310.00	854	$ 44,207.00
February	49	19,215.00	17	20,090.00	892	55,902.88
March	246	80,499.98	22	22,680.00	948	61,074.61
April	289	71,044.87	....	....	619	42,014.76
May	628	168,932.00	49	59,855.00	856	53,060.54
June	2,229	556,024.05	....	....	972	63,891.44
July	2,974	773,091.30	31	41,505.00	816	52,595.36
August	1,096	306,976.90	37	35,645.00	1,163	64,077.40
September	57	16,024.55	19	26,895.00	1,550	95,156.00
October	14	10,684.65	13	12,330.00	2,623	145,492.51
November	12	6,500.00	10	15,400.00	1,595	70,014.38
December	10	2,699.50	....	....	1,375	78,074.25
Totals	**7,630**	**$2,022,452.80**	**208**	**$345,710.00**	**14,263**	**$835,561.13**

	Commercial Air Conditioning	Beverage Coolers	Freezing Cabinets	Refrigerators, Coolers, Compressors, Fountains	Water Coolers and Ice Makers
January	8	26	1	10	4
February	7	19	....	15	7
March	30	19	1	8	3
April	38	28	....	5	1
May	197	32	....	13	4
June	74	20	...	12	4
July	112	27	....	8	1
August	42	16	....	15	3
September	19	9	....	17	1
October	21	8	2	14	3
November	11	3	4	2	3
December	8	2	2	11	....
Totals	**567**	**209**	**10**	**130**	**34**

90% of Homes Built In Chattanooga During '57 Were All-Electric, Including Heating

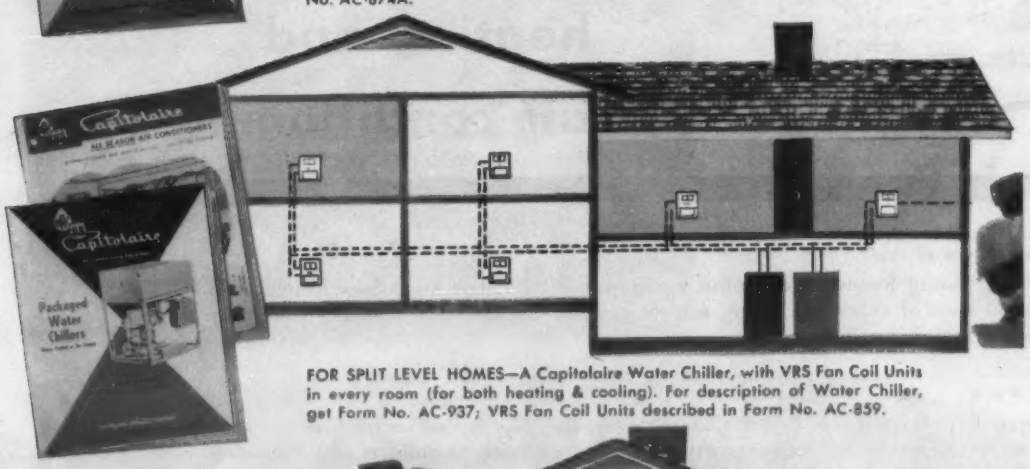
CHATTANOOGA, Tenn. — Electric League of Chattanooga reports more than 90% of homes built in this city last year were all-electric including electric heating.

This form of heating was put into 2,539 homes during 1957. Of these, 1,739 were new homes, 800 old. The 1,739 connected with electric heat last year was a drop from the 2,092 connected during 1956, the league points out. This represents a reduction of 17%, said to be due to the reduced number of homes built in 1957.

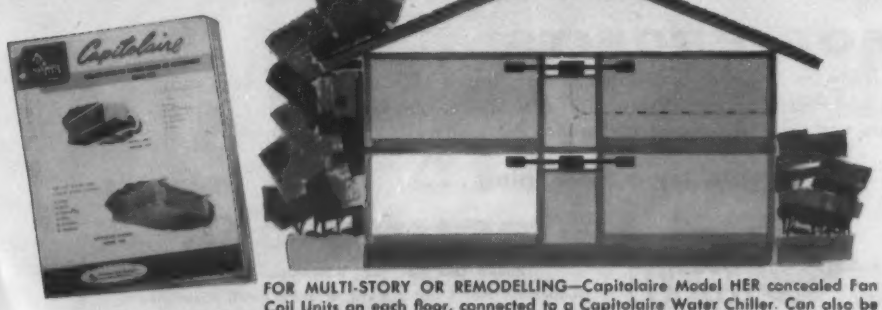
Sales of room and central air conditioners leaped to over 8,000 last year, the league continues, an increase of almost 25%. Monthly breakdown of 1957 sales of selected items is shown above.

NOW...You're Ready to AIR-CONDITION EVERY HOME with Capitolaire

FOR RANCH TYPE HOMES—Summer cooling with the Capitolaire out-of-doors air-cooled condensing unit, with flat coil and blower section in attic crawl-space. For use with any heating system. For description of unit, write for Form No. AC-874A.



FOR SPLIT LEVEL HOMES—A Capitolaire Water Chiller, with VRS Fan Coil Units in every room (for both heating & cooling). For description of Water Chiller, get Form No. AC-937; VRS Fan Coil Units described in Form No. AC-859.



FOR MULTI-STORY OR REMODELLING—Capitolaire Model HER concealed Fan Coil Units on each floor, connected to a Capitolaire Water Chiller. Can also be used for heating. Water Chiller (Form AC-937). HER Units described in Form No. AC-797A.

National-U.S. Radiator CORPORATION

HEATING AND AIR CONDITIONING DIVISION
Johnstown, Pennsylvania

in how many combinations do manufacturers use

SUPER-FLO FILTER-DRIERS?

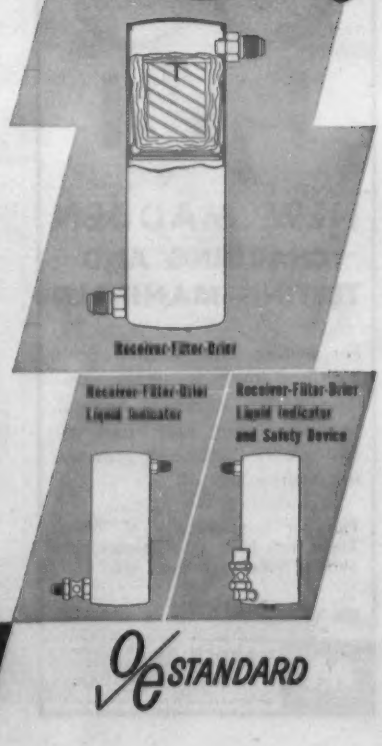
Available with SAE flare or sweat connections in brass or steel thru 20 tons.

More than 100 manufacturers specify Super-Flo Filter-Driers as original equipment, often combined with some other Remco component.

The manufacturer rush to Remco Super-Flo began as a result of . . . low cost . . . massive depth filtering to remove foreign particles . . . peak drying efficiency at liquid line temperatures through 150°F . . . acid control . . . and no measurable pressure drop!

The U/L approved steel shell makes a fine receiver. With it can be combined a Remco Liquid Indicator . . . Check Valve . . . or Safety Device.

All Super-Flo Filter-Driers and combinations are tested, dehydrated and moisture-vapor sealed for your protection. Write for low net prices and Bulletin R-11 for details.



AVAILABLE TO THE TRADE THRU WHOLESALERS EVERYWHERE

REMCO INC. ZELIENOPLE, PA.

9/e STANDARD

NISA's 25th Jubilee Convention Will Open In New Orleans May 11; 53 Will Exhibit

ST. LOUIS—Fifty-three suppliers and manufacturers serving the electrical service industry will exhibit their products at the 25th Jubilee convention of the National Industrial Service Association May 11 to 14.

The convention, whose theme is "Materials, Methods, and Management," will convene in the Hotel Roosevelt in New Orleans.

Opening with a Silver Jubilee President's reception on Sunday evening, May 11, the convention will devote a full day to each facet of the theme. Monday's sessions will cover materials, Tuesday methods, and Wednesday management.

Program Monday and Tuesday will be divided between formal talks in the morning and simultaneous shop talks in the afternoon. Members will relax Wednesday afternoon with tours of New Orleans' shops.

Convention program was published on page 19 of the April 7 issue of the NEWS. Since then, general convention chairman S. J. Stewart has announced that Joseph E. Burger, retired vice president and sales manager of the Corneli Seed Co., St. Louis, will address the silver jubilee banquet Wednesday evening. Frank W. Ross of Fairmont, Minn. will be toastmaster.

At 11 a.m. Tuesday, John Arthur of Arthur Industrial Advertising Agency, New Orleans, will speak on "Advertising for the Service Shop."

LIST OF EXHIBITORS

Exhibitors will have their night from 7:30 to 10:30 p.m. Tuesday. Companies exhibiting, with their booth numbers, are as follows:

Acme Electric Corp. (39); Allen-Bradley Co. (4-5); Allis-Chalmers Mfg. Co. (18); Anaconda Wire & Cable Co. (30); Argo Sales Co. (44).

Baldor Electric Co. (37); Belden Mfg. Co. (13); Brook Motor Corp. (25-26); Brownell Distributors (55); Browning Mfg. Co. (53); Bunting Brass & Bronze Co. (46).

Century Electric Co. (8); Chicago Printed String Co. (45); Cleveland Electric Co. (48); Complete-Reading Electric Co. (31); Cottrell Paper Co. (29); Crown Industrial Products Co. (33).

Delco Products Div., General Motors Corp. (50-51); Diehl Mfg. Co. (3); Dow Corning Corp. (22); Electric Materials Co. (56); Electro-Capacitors Co. (28); Electro-Technical Div., Sun Chemical Co. (41); Emerson Electric Co. (19).

Furnas Electric Co. (16); General Electric Co. (34-35); W. W. Granger, Inc. (9); Helwig Co. (23); Hendricks Electric Co. (38); Hess, Goldsmith & Co. (27); Hewson Co., Inc. (1); Hoover Ball & Bearing Co. (17); Houston Industrial Supply Co. (12); Howell Electric Motors Co. (7).

Industrial Engineering Equipment Co. (24); Insulation & Wires, Inc. (54); Johns-Manville Corp. (42); Johnson Bronze Co. (36); Lenni Products, Inc. (43); Lincoln Electric Co. (6); L. Frank Markel & Sons (40).

Ohio Carbon Co. (57); Permacel-LePage's, Inc. (2); Phelps-Dodge Copper Products Corp. (49); Potter & Rayfield, Inc. (52); Redmond Distributors (21).

Southern Carbon Brush Co. (32); Special Electric Co., Inc. (15); Spencer Thermostat Div., Metals & Controls Corp. (10-11); Square D Co. (47); Stewart Warner Corp. (14); Superior Carbon Products, Inc. (32); and Wagner Electric Co. (20).

Santa Ana Is Home of Newest RSES Chapter

SANTA ANA, Calif.—Newest chapter of Refrigeration Service Engineers Society, to be known as Santa Ana Valley chapter, will be installed and its charter presented Thursday evening, May 15, at 8 o'clock in Community Center, 1104 W. 8th St. here.

Feature of the charter meeting will be an educational program presented by Southern California Edison Co. Regular meetings of the new chapter will be held the evening of each third Thursday in the month at 7:30 o'clock.

Twenty charter members of thee new chapter have elected the following officers: President, Austin O. Hicks, vice president, W. E. Batchell; secretary, Douglas H. Dale; treasurer, Clay F. Diltz; directors, Eugene L. Dymond of Fullerton, Harold J. Entwhistle of Anaheim, and Harold Kettering; and director of education, John Losleben, according to the announcement.

MCAA Plans Panels on Refrigeration, Air Conditioning at May Meeting

NEW YORK CITY — Four hours of panel discussion on air conditioning and refrigeration subjects will be a feature of the 69th annual convention of the Mechanical Contractors Association of America, the association has announced.

The convention will be staged May 20 to 23 in the Ambassador hotel, Los Angeles. It will study new management methods, new markets, new techniques, and new promotion efforts.

The air conditioning and refrigeration session is planned for Thursday afternoon, May 22. Austin S. Ford, chairman of MCAA's air conditioning and refrigeration committee is chairman.

Though no topic is excluded, emphasis will be on major equipment developments, trends in installation techniques, and relationships and responsibilities of contractors, consulting engineers, and manufacturers in regard to system performance and guarantees.

Convention schedule calls for three general sessions, five panel discussions, and a full day (Wednesday) of conferences with individual industry manufacturers.

San Mateo Group Sponsoring Evening Classes

SAN MATEO, Calif.—A class in air conditioning and heating —sponsored by the San Mateo County Sheet Metal & Heating Contractors Association opened March 20 at San Mateo Junior college with a full enrollment of 34 and will run through the spring term until June 5.

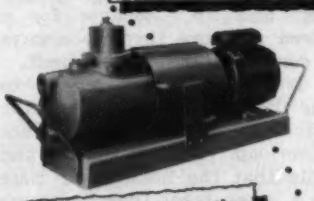
Joseph Boudreau of Belmont Sheet Metal & Home Appliance Co. is committee chairman. Roland R. Taylor, application engineer for Fraser & Johnston Co. of San Francisco, is the instructor.

Servicemen Agree...

BEACH-RUSS PORTABLE VACUUM PUMPS are made with features they desire

High Performance Characteristics

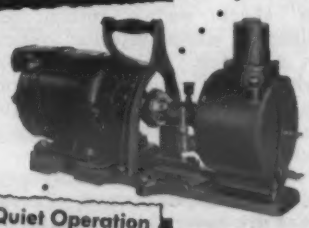
Completely Portable



Automatic Lubrication

Single- or Two-Stage

Long Life



Quiet Operation

Minimum Attention

Valves Eliminated

Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

BEACH-RUSS COMPANY DEPT. 33
50 CHURCH STREET • NEW YORK 7, N. Y.

Send descriptive literature covering
☐ Model O Single-Stage Vacuum Pumps.
☐ Model A Two-Stage Pumps.

NAME.....
COMPANY.....
ADDRESS.....
CITY..... ZONE..... STATE.....

BEACH-RUSS CO.
50 CHURCH STREET NEW YORK 7, N. Y.

ONCE A YEAR OPPORTUNITY...

Overrun of large size 1958 Model combination refrigerator-freezers made under contract for nationally known brand
limited quantity
subject to prior sale
priced for real savings

call or write

CONTRACT MANUFACTURING DIV.
JORDON COMMERCIAL REFRIG. CO.
2200 Kennedy St., Philadelphia, Pa.
JE-5-8301

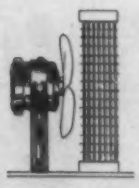
HI-DRI THE LOWEST PRICED ALL-BRASS DRYER BEATS ALL COMPETITION

- All Brass Shell and Fittings.
- 100% Guarantee.
- Individually Boxed.
- Rated Under ARI Standard 710.
- Filled with Davison's PA-400 Silica Gel.
- All Solder Connections made with Easy-Flo 45 Silver Solder.
- Extra Large Hexes.
- U. L. Approved.

ALSO AVAILABLE WITH YOUR PRIVATE BRAND LABEL.
FOR INFORMATION AND PRICES CONTACT
WABASH CORPORATION 2300 S. WESTERN AVE. CHICAGO 8, ILL.

COMPLETELY INTERCHANGEABLE

Your No. 1 Condenser Fan Motor for Replacement in the Air Conditioning and Refrigeration Fields



Condenser Fan Motor
1½ Through 16 Watts

NEW Redmond TYPE AM-4 WITH NEW SHORTER LENGTH

Stock One Motor to Accommodate All Mountings

1. The new AM-4 will replace all rear-mounting motors.
2. You can replace motors with peripheral mountings.
3. All-Angle Operation: designed for all-position mounting, vertical shaft up, shaft down, or any angle. Now you stock only one motor. The extra large oil reservoir is permanently sealed for lifetime lubrication — and guaranteed not to leak oil in use or shipment.

Redmond Distributors, Inc., Owosso, Michigan

REDMOND DISTRIBUTORS, INC.
Owosso, Michigan.
☐ Send me your new AM-4 catalog sheet.
☐ Mail me your 4-page catalog describing the complete line of Redmond motors, blowers, fan blades, replacement kits, and accessories.

NAME_____
COMPANY_____
ADDRESS_____
CITY_____ STATE_____

Air Distribution Requirements In Year-Round Air Conditioning

Part 2—Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

Because the distribution of air in the Air Conditioning, Heating, and Ventilating cycles under discussion here, is accomplished by the so-called "forced air" method, we must concern ourselves with other equipment than merely ductwork.

The basic principles of airflow in ductwork were given in the foregoing to establish the fundamentals. In turn must be established those known fundamentals affecting and affected by fan and blower equipment. This stage will be concerned only with those fundamentals relating to the Centrifugal Fan (or blower if you wish), and its varieties. Because these varieties are the most common in use and because they become the "prime-movers" of air with which the air conditioning engineer is concerned and their initial mission and accomplishments must be understood.

MISSION: TO PUT AIR IN MOTION

Primarily the mission of the fan is to put the air in motion within the designed system, within the designed performance. This is accomplished by creating a pressure differential excessive to or below that of the existing atmospheric pressure.

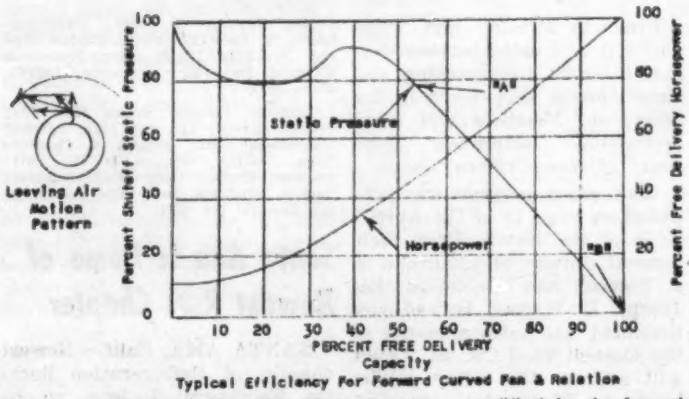


FIG. 16—Slightly better than 20% of the pressure accomplished by the forward curved fan is attributable to the impeller. Balance must come from the "scroll" spiraled housing.

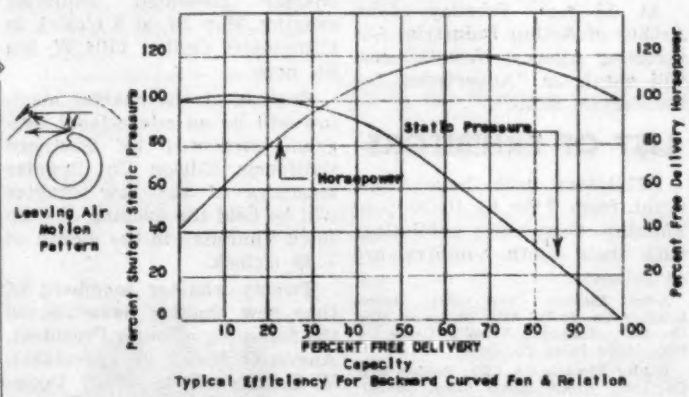


FIG. 17—In position to the forward curved fan, the backward curved fan type converts to about 70% static energy within the scroll.

The laws of aerodynamics are specific to centrifugal fan performance as well as initial design. To understand the peculiarities of fan performance is to understand the specifics of fan design.

Too many field engineers accept rated performance factors in system as well as equipment design without the slightest knowledge of the aerodynamic or mechanical design involved in and of the fan responsible for those ratings. Thus when vagaries, mistakes in calculations, or "gremlins" show up in the system or equipment, the field engineer may flounder. Thus before further expanding on the airflow in duct design it is important to deal with the prime mover in detail.

DEFINING THE CENTRIFUGAL FAN

First, to define the Centrifugal Fan and its varieties:

1. Centrifugal Fans transmit energy to an air stream as the result of an impeller or wheel, bearing pressure blades, turning within a housing of logarithmic spiral, so designed as to convert that energy (kinetic) into Static Energy for the purpose of overcoming friction.

A. Centrifugal Fans fall into three categories, i.e., (1) Forward Curved Blade Fans. (2) Backward Curved Blade Fans. (3) Radial Blade Fans.

Most familiar is the Forward Curved Blade Fan, with the use of the Backward Curved variety applied only in special applications. The Forward Curved variety is used mostly in the work with which the field installer is concerned, because these fans operate at relatively low peripheral velocities. In other words the speed of the air leaving the wheel is greater than peripheral speed of the impeller or wheel. Because of their use in systems design wherein they discharge into ductwork, their dependence on recovery is accomplished.

Slightly better than 20% only of the pressure accomplished by the Forward Curved fan is attributable to the impeller or wheel; the balance must come from the logarithmic spiraled housing or "Scroll," as we know it.

Because of the air speed leaving this type of wheel, ductwork acting as a discharge duct or plenum must be equivalent always to the decrease in velocity desired and required.

Another valuable variety of the Centrifugal Fan is the Backward Curved type. In fact it is one of the highest efficiency factored fans available to us; however this efficiency is not accomplished without some sacrifices to other desirable qualities.

Contrary to the Forward Curved Fan the Backward Curved type operates with a lower air speed than that of the impeller or wheel periphery. Furthermore it is not dependent on the discharge duct for recovery of static efficiency. In opposition to the forward curved fan, the backward curved type converts to about 70% static energy within the scroll, leaving but 30% to be recovered in the discharge train, as velocity pressure. Consult Figs. 16 and 17, which illustrate this.

PERFORMANCE CHARACTERISTICS

The most important things to remember about the performance characteristics of these two type fans are:

1. They create positive or negative pressure differences as related to atmospheric pressure. Because of this action taking place at the periphery, and being the same in either case, the comparison is conjunctual. By this is meant that the air pressure increases as it passes through the fan, thus the Absolute Pressure is higher at the discharge than at the inlet.

2. Air movement is induced at the inlet of the fan with surplus atmospheric pressure causing the initial induction.

3. The Forward Curved fan requires less peripheral impeller speed for a required c.f.m. against a required resistance.

4. The Backward Curved fan will require the greater amount of peripheral impeller speed for a required c.f.m. against a required resistance, and as a result will operate with a higher noise level.

5. The Forward Curved fan's horsepower increases as the air quantity increases (see Fig. 16). In practical application this horsepower range is normally limited by the system ductwork.

However, no Forward Curved fan should be picked to use in an application where it will be called upon to operate *Outside Or Beyond* that stable limit as shown in Fig. 15 between points "A" and "B," because for a given pressure there is always a corresponding volume limit.

6. Contrary once again to the Forward Curved fan, the Backward Curved fan does not "overload." Consult Fig. 17 and note that the horsepower rises to a given point then decreases as the air quantity increases.

7. Backward Curved fans are not especially adaptable, because of their higher operating noise level for a given c.f.m. against a given resistance, to "cabinet" type installations, or in sheet metal return air plenums where interior volume is a factor; this is especially where duct noise transmission might become a factor or the cabinet or plenum is within a noise level limitation.

Contrary to what many people think, Backward Curved fans are never the entire answer to mistakes made in system application calculations, initially based on Forward Curved fans, and performance found wanting.

(To Be Continued)

HOW TO WIN CUSTOMERS and MAKE FRIENDS—
INSTALL
FRICK
UNIT AIR CONDITIONERS

3-TON
5-TON
7½-TON
10-TON
15-TON

Now built in capacities of 3 to 15 tons of refrigeration, these dependable units are profitable to handle, and profitable to own!

Backed by over a half century of air conditioning experience. Fully warranted. Beautiful finish.

Frick units may cost a bit more but are well worth it. They are conservatively rated, and durably built by a company whose policies have been tested through 105 years of successful experience.

Some good territories still open for Distributors.

Get the whole story: write, wire or phone.

DEPENDABLE REFRIGERATION SINCE 1853
FRICK CO.
WAYNESBORO, PENNA., U. S. A.

Write for Frick Bulletin 522-F giving full details of the advantages of these unit conditioners.

We Specialize In
Cleaning & Balancing Large Air Conditioning and Ventilating Duct Systems
We Go Anywhere
AAA VENTILATION CLEANING SERVICE
Ralph Fields
500 W. Willis, Detroit, Mich.
Phone Te 1-2707

TENS OF THOUSANDS OF WELDED ALL-ALUMINUM REFRIGERATORS & FREEZERS INSTALLED SINCE 1946 PROVE FOSTER'S VALUE
FOSTER
HUDSON, N. Y. FOUNDED 1946
REFRIGERATORS AND FREEZERS
Foster Refrigerator Corp. Hudson, N. Y.
Write For Complete Information Today!
SEE FOSTER REFRIGERATOR CORP. AT THE NRA SHOW BOOTH A-36

Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

Capacity Rating of Smaller Condensing Units

The capacities of the smaller condensing units of about 20 tons or less capacity are usually stated in B.t.u. per hour instead of tons per day. Moreover, several capacities are stated for various evaporator temperatures and condensing conditions, rather than at only 5° evaporator temperature and 86° condensing, for standard ton conditions.

The condensing units are divided into three classifications depending upon the evaporator temperatures with which they are to be used, but each of the three having the same horsepower motor.

THREE CLASSIFICATIONS

Low temperature units, -25° to 0° F. High temperature units 25° to 45° F. Medium temperature units 0° to 25° F. Capacities in B.t.u. per hour are given for each of these three classifications of units, but not just at one evaporator temperature. Usually, the manufacturer gives the capacity of the unit for several evaporator temperatures in steps of 5°.

For the low temperature units, he might give six capacities of the unit for six evaporator temperatures, -25°, -20°, -15°, -10°, -5°, and 0°. For the medium temperature units, at 0°, 5°, 10°, 15°, and 25°, and possibly at -5° also. For the high temperature units, he would probably give capacities at 25°, 30°, 35°, 40°, and 45°.

STANDARD RATING CONDITIONS

1. Evaporator temperature. In each classification, the capacity is greater the higher the temperature of the evaporator on which it is used.

The same size motor is used on each of the three classifications of units, and the motor wattage is about the same. This is because the displacement of the low temperature unit is greater than that of the medium temperature unit; and the displacement of the medium temperature unit is greater than for the high temperature unit.

With belt-driven units, the same compressor can often be used on all three classifications of units by varying the compressor r.p.m. by means of pulley ratios. For hermetic or other direct drive compressors, the difference in displacement is effected by varying the bore and/or stroke, or by using a different number of cylinders.

The purpose of having the three classifications for each horsepower is to take advantage of the full horsepower of the motor. Otherwise, if the motor were loaded on the basis of the displacement for 25° to 45° evaporators, it would be but little more than one-half loaded if used on -25° to 0° evaporators.

On the other hand, if the motor were loaded on the basis of the displacement for -25° to 0° evaporators, it would be heavily overloaded if used on evaporators above 0°.

In addition to using different compressor displacements for each of the three classifications, different condensers must be used, for the high temperature unit with its relatively large compressor displacement must condense more refrigerant than the medium temperature unit, and therefore requires a larger condenser. The same is true of the medium temperature and low temperature units.

2. Superheat of the suction gas. Not only is it hard on the compressor to operate Refrigerant-12 and methyl chloride condensing units with little or no superheat in the suction gas entering the compressor, but it is not feasible in ordinary use.

If the suction gas is at or near the evaporator temperature, the suction line will frost or "sweat" most of the time, for even with a 45° evaporator, the suction line would be below the dewpoint temperature of the air.

This sweating would be objectionable to the user and water dripping from the suction line might damage merchandise or furnishings.

Therefore, it is standard practice to rate these condensing units on the basis of a 65° temperature of the suction gas entering the compressor of water-cooled units, and 80° for air-cooled units, regardless of the evaporator temperature.

Allowing this much superheating of the suction gas reduces the rated capacities of the condensing units from what they would be with less or no superheating, but it is realistic and in line with the usual and, in fact, necessary practice in the application and use of the units.

3. Condensing temperature. Unlike the standard ton, the ratings for the smaller units are not based on a given or fixed condensing temperature.

Instead, the air-cooled units are rated according to the air temperatures or "ambient temperatures," as they are also referred to, of the rooms in which these air-cooled units are to be used.

The standard ambient temperature is 90° F., but most manufacturers show capacities for their air-cooled units in 80° and 100° rooms, also. Thus, the manufacturer's rating table for an air-cooled medium temperature unit might show 21 different B.t.u. per hour capacities, seven for each of three room temperatures.

Usually the condensing temperature of an air-cooled unit is about 30° to 35° higher than the temperature of the room air, and the condensing pressure is then the pressure at saturation corresponding to the condensing temperature.

Instead of publishing actual capacities for their air-cooled units at 80° and 100°, some manufacturers give a factor, usually about 7% for each 10° variation in room temperature above or below the capacities given for 90° rooms.

Thus the capacity in an 80° room would be 7% greater, and for a 100° room, 7% less than the capacity shown for the 90° room.

Water-cooled condensing units are rated according to the temperature of the water entering and leaving the condenser; or putting it another way, for several available cooling water temperatures and with a certain number of degrees rise in the temperature of the water as it passes through and leaves the condenser.

Seventy-five degrees F. is considered the standard inlet water temperature, but most manufacturers also show capacities for two or three other inlet water temperatures such as 65° and 85°.

Some manufacturers rate their water-cooled units on the basis of one temperature (95° for example) for the water leaving the condenser, with entering water 10° to 30° below the leaving temperature.

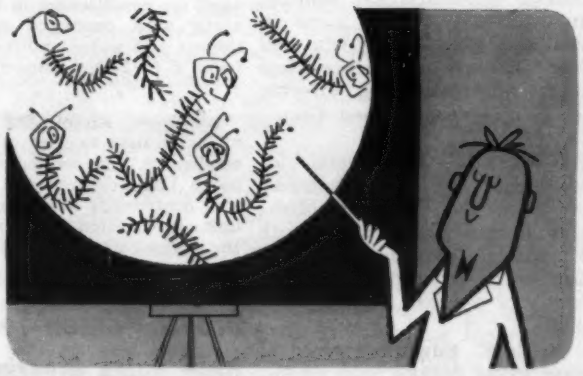
This is a simpler method than showing a number of ratings for several entering water temperatures and several temperature rises of the water passing through the condenser.

Whatever the method, most manufacturer's rating tables for water-cooled units are based primarily on water temperatures rather than directly on a fixed condensing temperature, although the effect is similar.

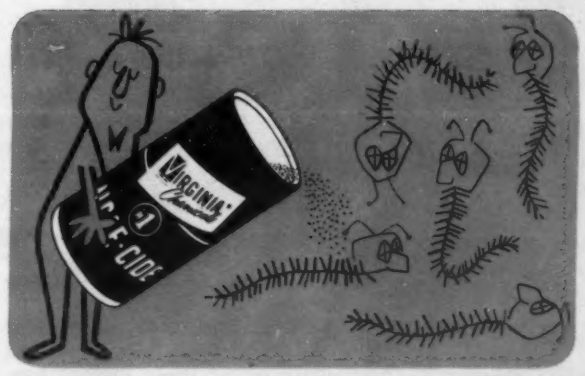
4. Temperature of the liquid refrigerant. Ordinarily, the condensing unit manufacturer does not specify the temperature of the

(Concluded on next page)

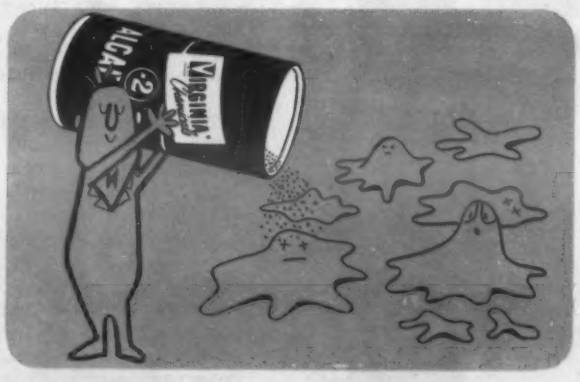
Stop algae and slime from fouling the water in your cooling or air-conditioning system...
USE "VIRGINIA" ALGAE-CIDES #1 AND #2



Many of the common species of algae can clog pipes, condensers and louvers, sharply reducing heat transfer efficiency. Bacteria in the water cause slime to accumulate—with the same costly effect on your cooling or air-conditioning system.



Algal growths can easily be controlled with "Virginia" Algae-Cide No. 1. This organic copper compound is lethal to algae and is much more active than ordinary copper salts. Keeps the water in cooling tower systems fresh and clean.



When the dominant cause of water fouling is slimes, use "Virginia" Algae-Cide No. 2. Highly toxic to bacteria, it eliminates slimes and mixed slime-algae infestations. Will also eliminate the problem of copper-resistant algae in any water-cooled air-conditioning system.

Get long, efficient service from your cooling or conditioning system with "Virginia" Water Treatment Products—Algae-Cides No. 1 and No. 2, Solid and Liquid Scale Removers, Scale and Corrosion Inhibitor, and Ice Machine Cleaner. Order from your wholesaler.

For free folder, "How to Turn Water into Money," write Refrigeration Division, VIRGINIA SMELTING CO., 106 Jefferson St., West Norfolk, Va.

ESOTOO • V-METH-L • CAN-O-GAS • VASCOCEL • PERMAGUM • PRESSTITE TAPE
SUNISO REFRIGERATION OILS • WATER TREATMENT CHEMICALS • SALES AGENT & REPACKER FOR DU PONT'S "FREON" REFRIGERANTS

Available in Canada and many other countries

VIRGINIA® Chemicals

Constant Suction Pressure--

(Concluded from preceding page)
liquid refrigerant leaving the condensers or receivers of his condensing units.

The liquid temperatures may vary considerably with the loading, suction pressure, condenser size, design, and cleanliness. Moreover, there is some cooling in the liquid line, and of course this is particularly true if a heat exchanger is used between the liquid and suction lines.

Liquid refrigerant temperatures leaving water-cooled condensers are usually about 8° to 10° above leaving water temperatures. Liquid refrigerant temperatures leaving air-cooled condensers are usually about 15° above room temperatures.

CAPACITY TABLES DETERMINED BY ACTUAL TESTS

The manufacturer of the condensing unit determines the published capacity data from actual tests run on his various models at various conditions of room temperatures, etc.

From those actual tests, his engineers can calculate efficiencies; but it would be extremely risky for the manufacturer to publish capacity data on the basis of estimated efficiencies. They vary so much according to conditions and even between models that appear to be similar, that he could not afford to publish data except on the basis of actual tests.

Even then, there is some variation in the efficiencies and capacities of machines of the same model on his production line, and which are exactly alike except for variation in tolerances, fits, etc., in actual machining and assembly. Such variations are usually less than 5%.

In summary, it can be said that in order to determine the capacities of condensing units under varying conditions, the manufacturers rating tables should be consulted.

If the unit is old, noisy, and otherwise shows evidence of considerable wear, it is well to make some allowances for reduction in efficiency and capacity as a result of wear. If the unit is in reasonably good operating condition, it is not likely that it has deteriorated more than 10%.

Quite often, wear of pistons, rings, and cylinders does not affect the efficiency and capacity as much as wear of bearings that cause increased clearance volume, or corrosion or pitting of suction or discharge valves that result in leakage of gas past these valves.

AMCO

CONDENSATE PUMP

Combines QUALITY and PERFORMANCE WITH LOW COST

- Positive displacement electric switch w/float control
- Completely Automatic
- Small and Compact Size— 6" x 9" x 13"
- Ready to Install

AMCO Condensate Pump has no equal for efficient, quiet, trouble-free operation . . . will remove cold or hot condensate fluid from receiver tank, boilers, air conditioning systems and pumps it to outside drain. Has 1/30 H.P. Motor, 20 ft. head (most powerful made — will deliver up to 371 G.P.H.) has 6 ft. heavy rubber cord, shock proof plug.

Shipping wt. 13 lbs.

List Price $50.00

Dealer Discount 50%.
Add'l Discounts for quantity.

Don't break concrete! Save Time! Get More Jobs Done!

AMCO

AMERICAN COMFORT MANUFACTURING COMPANY
2401 Main Street
Evanston, Illinois
DAvis 8-9200

Send for literature and price list today.

Century Electric Builds 2 Office-Warehouses

ST. LOUIS—Century Electric Co. has built two new, modern regional office-warehouses in Fairview, N. J. and Cleveland. Both are in full operation. The buildings are almost identical. The warehouse has approximately 3,600 sq. ft. of floor space, and the offices about 800 sq. ft.

Frank Hatfield is manager of the new office-warehouse in Cleveland at 16115 Puritas Ave. Gunnar Moe is manager of the New Jersey office-warehouse at 7 Commercial Ave., Fairview.

Death Notices

Evan Edward (E. E.) Cannon died recently in his home in Beaumont, Texas. He had owned and operated Cannon Refrigeration Co. as a commercial refrigeration and air conditioning dealer.

* * *

W. Saul Smith, 69, retired district sales manager for Johns-Manville Corp., died recently in Berea (Ohio) Community hospital. He was a former national director of the American Society of Refrigerating Engineers and a past president of the Cleveland Chapter.

* * *

Carl R. Matthews, sales engineer for Minneapolis-Honeywell Regulator Co. for 35 years, died recently at his Westlake, Ohio home of a heart attack. He was a member of the American Society of Heating & Air-Conditioning Engineers.

* * *

Frank H. Adams, 72, president of Surface Combustion Corp., died of a heart attack at his home in Toledo. He was a former president of the Industrial Furnace Manufacturers and the Gas Appliance & Equipment Manufacturers and had served on the national board of the American Gas Association.

* * *

William J. Grover, one of the merchandising pioneers in the field of automatic gas heating, died recently at his home in Maitland, Fla. Grover, who had been on leave of absence since 1956, was marketing director for Surface Combustion Corp.

* * *

Gregory F. Forsthoefel, 58, co-founder and board chairman of Revco, Inc., Deerfield, Mich., and formerly associated with Frigidaire, Westinghouse, and Tecumseh Products, died recently of a heart ailment.

* * *

Hugh E. Edwards, owner of Zane Filter Service, died recently. Mr. Edwards had been engaged in the heating and air conditioning business.

MORE OF EVERYTHING WITH THE COMPLETE LINE FROM LA CROSSE

NEW KOOL' KLOSET

Here's extra refrigeration space . . . at rock bottom cost. The La Crosse walk-in, reach-in KOOL'KLOSET sweeps the field with a *removable, self contained refrigeration system,* grey baked enamel exterior, rugged hardware with inside release, sizes 34" wide and 62" wide.

Cubemaker

Reach-In Cooler

Supreme Milk or Bottle Cooler

Drainboard

LA CROSSE COOLER COMPANY
3800 LOSEY BOULEVARD SOUTH, LA CROSSE, WISCONSIN

EXPORT OFFICE: 125 BROAD ST., NEW YORK, CABLE: EXIMPORT

Western Show News

Trion Exhibit Will Be Installed In Bank After Show's Over

LOS ANGELES—After serving as a headline attraction in the Trion, Inc. booth at the Western Air Conditioning, Heating, Ventilating, & Refrigeration Exposition, a completely assembled, custom packaged high capacity electronic air cleaning unit will be installed in the Investors Savings & Loan building here.

It will feature a motorized moving wash system.

More Exhibitors

(Too late to include in the May 28 issue are these resumes of what will be featured by three companies at the Western Air Conditioning, Heating, Ventilating, and Refrigeration Exhibit in Los Angeles, May 7-11.)

"Air filtering by the roll" will be featured in American Air Filter Co.'s booth 402. Two new applications, AAF's model B "Roll-O-Matic" air filter and the redesigned Herman Nelson "Roll-O-Vent" air handling unit, will be demonstrated.

* * *

Cond Air Div. of Elliott Engineering Co., Inc. will exhibit new 15 and 20-ton "Dual Zone" packaged air conditioners in booth 201 along with packaged air conditioners and water chillers ranging from 2 to 20-ton capacity.

* * *

Baltimore Aircoil Co. will exhibit its new line of evaporative condensers and cooling towers in booth 115. Featured will be a 25-ton centrifugal fan blowthrough unit. In addition, scale models of the draw-through and propeller fan types will be shown.

Drayer-Hanson To Hold Sales Meetings

LOS ANGELES — Drayer-Hanson, Div. of National-U.S. Radiator Corp., will hold annual mid-year sales conferences for its nationwide network of local-area and foreign sales agents in Los Angeles May 9-10, according to C. W. Pollock, manager of air conditioning and refrigeration.

This year's meetings are being staged simultaneously with the Western Air Conditioning, Heating, Ventilating, and Refrigeration Show, which is scheduled May 7-11 at the Shrine Auditoruim here.

"This will permit our sales agent groups to attend the regional Shrine Show," Pollock said, "and hear some of the important papers expected to be presented."

Several Drayer-Hanson new products and product refinements for 1958 being "showcased" (booths No. 101 and No. 202) will be priorly previewed by the Drayer-Hanson sales representatives, he indicated.

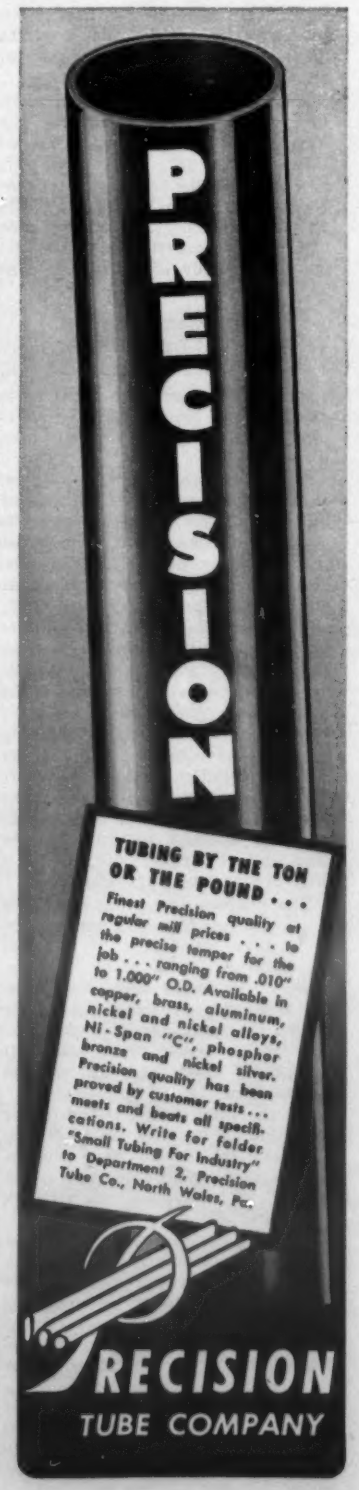
Included is the firm's major move to the manufacture of high velocity air conditioning equipment.

Introduced will be its new high pressure hot and cold deck air handling line.

Recold Factory Open For Inspection by Visitors at Show

LOS ANGELES — Recold Corp., manufacturer of air conditioning and refrigeration equipment, has announced that its plant will be open for inspection by visitors during the Western Air Conditioning, Heating, Ventilating, and Refrigeration Exhibit in Los Angeles May 7-11.

The Recold factory, located at 7250 E. Slauson and occupying 110,000 sq. ft., is headquarters for the production of Recold products which are distributed all over the world, the long-time west coast manufacturer further explained for prospective visitors.


PRECISION
TUBING BY THE TON OR THE POUND . . .
Finest Precision quality at regular mill prices . . . to the precise temper for the job . . . ranging from .010" to 1.000" O.D. Available in copper, brass, aluminum, nickel and nickel alloys, Ni-Span "C", phosphor bronze and nickel silver. Precision quality has been proved by customer tests . . . meets and beats all specifications. Write for folder "Small Tubing For Industry" to Department 2, Precision Tube Co., North Wales, Pa.
PRECISION
TUBE COMPANY

Carrier Prize--

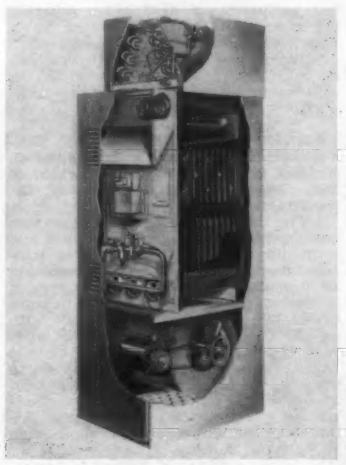
(Concluded from Page 1, Col. 4)

Under the contest rules the $10,000 will be in a trust fund in the student's name at the Chase Manhattan Bank of New York. The fund will cover all costs incurred by a student during four years of college, including tuition, board, books, and fraternity or sorority affiliations.

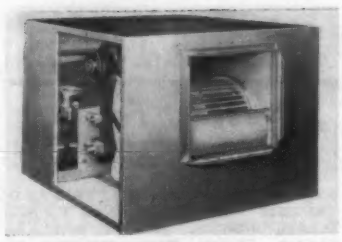
Michael J. Kane, manager of Carrier's Icemaker department, said the official start of the contest will be May 5, with the closing date July 15. Dealers and their retail salesmen are eligible to complete.

Prize points will be given for every Icemaker sale during the period. Besides the college scholarship, regional, runner-up, and bonus awards will be made.

All participants will have an equal chance at the scholarship.



HEATING unit to be offered by Trane Co. with bonnet cooling unit mounted.



FAN cooling unit due in June.

CONDENSING unit in weatherproof cabinet.

Trane Home Heating-Cooling Line--

(Concluded from Page 1, Col. 2)

called "Climate Changer," A. C. Menke, vice president, disclosed. He said the name was selected from nearly 1,000 submitted by La Crosse and field personnel in a naming contest. Six participants submitted the winning name.

According to Menke, the name "Climate Changer" has been associated with Trane and certain lines of equipment for several years. He said, "By using it to describe our residential air conditioning products, we are in effect extending the name to include the new lines."

Products will include new gas-fired furnaces, cooling components for addition to existing warm air heating systems, and cooling equipment for use in homes with wet heat systems and other applications requiring independent air delivery.

5 UPFLOW FURNACES

In total, Trane will market five belt-driven up-flow discharge furnaces, ranging from 77,000 to 155,000 B.t.u. input.

With all wiring and controls concealed but easily accessible, the furnaces will feature slim, compact dimensions, quiet operation, specially designed sectional heat exchanger, and will be available for use with natural, mixed, or LP gas.

The American Gas Association approved furnaces can be installed free standing or concealed in minimum closet areas.

All units are only 26 in. deep and range from 16 to 24 in. wide, depending on heating capacity. The smallest unit occupies about 2½ sq. ft. of floor space, the largest 4 sq. ft.

To achieve year-round air conditioning, a new Trane remote condensing unit and a furnace mounted cooling coil are combined with the furnace.

The condensing unit's principal components—the compressor and air-cooled condenser—are positioned in a weatherproof 18-gauge heavy steel cabinet. Special Bonderized exterior withstood a 1,500-hour salt spray test without incident. The interior is equally well protected. Rigid protective screening provides a small animal shield and prevents tampering.

3 YEAR-ROUND SIZES

Initially, Trane will market three sizes—2, 3, and 5 tons.

Special features include high capacity—near full tonnage at air-cooled conditions — small dimensions, up-blast discharge for quiet operation and elimination of damage to home or nearby shrubbery, and new, more compact, specially designed high capacity coil.

The furnace cooling coil, in inverted "V" arrangement, can be used with Trane and other modern furnace installations.

This cooling component is matched with furnaces as follows: 2-ton cooling capacity with 77,000, 100,000, and 115,000 B.t.u. heating capacities; 3-ton cooling capacity with 100,000, 115,000, 135,000, and 155,000 B.t.u. heating capacities; and 5-ton cooling capacity with 135,000 and 155,000 B.t.u. heating capacities.

DUCT COOLING UNIT

Trane also will build a duct cooling coil for use where head room is limited. This inclined coil provides horizontal air flow and consists of a coil, casing, expansion valve, and drain pan for connection to ductwork. Sizes will be 2, 3, and 5-ton capacity.

For use with existing wet heat systems or other cooling applications requiring independent air delivery, Trane will market fan-coil units in three sizes—2, 3, and 5 tons—to match the condensing units.

They will be among the smallest in the field with quiet operation, new coil, in addition to high capacity, the company claims.

Also available will be an accessory discharge chamber for free discharge for horizontal commercial application.

There is a 5-year warranty on all refrigeration systems and a 10-year warranty on all heat exchangers, the company pointed out.

Remove Scale quickly and safely with anco CONDENSER CLEANER

You simply dissolve ANCO Condenser Cleaner in the sump while the system is in operation for effective results. Within 2 to 15 hours, depending on the thickness of the scale, the condenser tubes are cleaned. High head pressure caused by fouled tubes drops to normal and operating efficiency is restored. ANCO Condenser Cleaner can be safely used without damage to metals and is not hazardous to handle. Try it once and you'll use it always.

Keep cooling towers free of algae and slime with ANCO Algaecide.

Protect condenser against rust, scale and pitting with ANCO Water Treatment.

For all ANCO products see your wholesaler or write direct.

SPECIALISTS IN MAKING WATER BEHAVE

Anderson Chemical Company, Inc.

Box 1424 · Macon, Georgia

Schnacke Thermatrol COOLING TOWERS

PCT FEATURES

- Blow through dry fan & Motor
- Simplified, compact, Symmetrical Construction
- Easy access for Service
- Sizes 3 to 50 Tons

At a NEW LOW PRICE!

Models PCT — for outdoor installation

Propeller type - blow through design assures dry fan and motor - plus more symmetrical appearance and increased efficiency. Excellent air delivery requires less horsepower. Quality, time tested design and construction. Attractive gray vinyl coating over rust proof primer assures corrosion resistance.

Models SCT—with centrifugal fans also available for duct installations.

Write for prices and brochure.

Made by Experts in the Refrigeration & Air Conditioning Field

EVANSVILLE 7 SCHNACKE, INC. INDIANA

NOW FINISH YOUR SEALING AND CAULKING JOBS FASTER BETTER MORE ECONOMICALLY THAN EVER BEFORE!

Use

Mortite Caulking Cord

Mortite Caulking Gum

sturdily packaged in handy "tool-kit" size

Lower cost Mortite White Caulking Cord contains three 16 foot rolls, fits any tool kit; ¼" rope-like cords stay permanently pliable.

Lower cost Mortite White Caulking Gum hand molds into beads, wads, gaskets . . . any shape. Comes in solid one pound slug.

These two sealers, designed by refrigeration servicemen, are perfect for 1001 different jobs:

- Sealing windows, extension wings and openings around window air conditioners
- Sealing breaker strips and joints in air ducts
- Sealing latch and hinge plates, tube entries and cabinet bases

Mail coupon for full information

JW Mortell COMPANY

Makers of Famous NoDrip Tape and Mortite

J. W. Mortell Co.
520 Burch St., Kankakee, Ill.

O.K.! Send me full information about the complete line of Mortell refrigeration products.

I'm a ☐ Jobber ☐ Dealer ☐ Serviceman

NAME_____

ADDRESS_____

CITY_____ STATE_____

Will Pay Cash For ROOM - AUTO PACKAGE Units in Original Crates

THERMAL CONTROL CO.
2500 W. Sixth St., Los Angeles 57, Calif.
DUnkirk 3-4341

ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

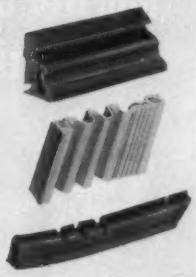
quick delivery...low cost

EXTRUSIONS

TUBING...GASKETS...SEALS

Single or multi-webb forms for moisture, air and water seals... spliced-to-fit or straight... in various lengths.

Your choice of natural rubber, synthetics, vinyls matched to your color or in new metallics.



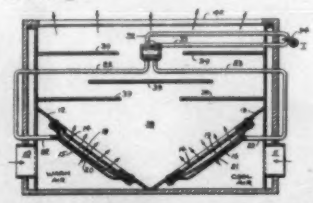
Investigate GI's Hypalon double-extruded appliance tubing; extra-resistant to oxidation and chemical deterioration.

GICO GEAUGA INDUSTRIES, INC.
MIDDLEFIELD, OHIO

PATENTS

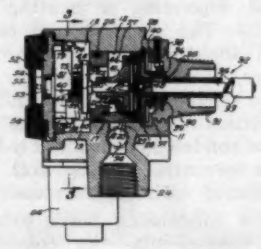
Week of Feb. 4 (Continued)

2,822,132. AIR TEMPERATURE AND VACUUM CONTROLS. John R. McDonald, Newton, and Raymond L. Carlson, Canton, Mass., assignors to Westinghouse Electric Corp., East Pittsburgh.



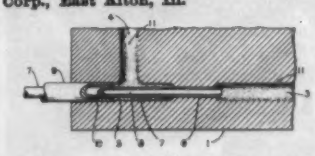
1. An air distributing unit comprising a first damper mechanism having a perforated front plate forming a warm air outlet, a back plate aligned with and spaced from said front plate, a flexible diaphragm secured at its edges to said back plate and spaced at its edges from said front plate, the spaces between said diaphragm edges and said front plate forming an air inlet for warm air to be dampered, said back plate being shaped to provide with said diaphragm a warm air chamber behind said diaphragm, said back plate having an opening therein for admitting warm air under pressure to force said diaphragm forwardly toward said front plate. . . .

2,822,133. VALVE STRUCTURE. John H. Grayson, Monrovia, William A. Ray, North Hollywood, and Richard D. Grayson, La Canada, Calif., assignors to General Controls Co., Glendale, Calif.



5. In a valve structure: a casing having a passage therethrough; an apertured closure member mounted for rotation relative to said casing and so as to control flow through said passage; a rotatable member for operating said closure member and operatively connected thereto; a supplemental device for influencing flow through said passage; means for operating said supplemental device comprising an arm mounted on said operating member and projectable therefrom to a position wherein it is operatively engageable with the device when the operating member is rotated. . . .

2,822,151. CONNECTION FOR PLATE HEAT EXCHANGER. Charles A. Heuer and Richard F. Adams, Alton, Ill., assignors to Olin Mathieson Chemical Corp., East Alton, Ill.



1. In a sheet-like hollow article having passageways embraced within the confines of the body of the article, a combined inlet-outlet connection at an extension of said passageways to the periphery of said sheet wherein the connection is characterized by a divergent portion of said passageways directly joined in series with one end of said passageways and one end of said extension to which said divergent portion forms an initial part. . . .

2,822,333. LUBRICATION OF REFRIGERATOR EQUIPMENT. John G. Keller, Cranford, N. J., assignor to Esso Research and Engineering Co. No Drawing.

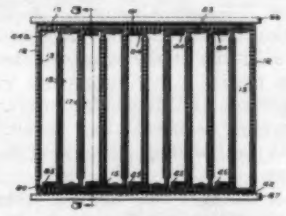
1. In the operation of refrigerator equipment employing a refrigerant and lubricant which are admixed at temperatures below about 0° F. resulting in flocculation of the refrigerant and lubricant, the improvement which comprises lubricating said equipment with a lubricating oil composition consisting essentially of a highly refined naphthenic Coastal Distillate having a viscosity of from 30 to 100 SUS at 210° F. containing combined therein a minor amount, sufficient to reduce the floc point, of an alkyl aryl borate having the general formula

$$(RAr)_xH_yBO3$$

wherein R is an aliphatic hydrocarbon radical containing from 16 to 30 carbon atoms, Ar is an aryl group, x is an integer from 1 to 3, y is a number from 0 to 2 and x+y=3.

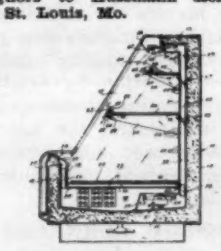
DESIGNS

182,017. COMBINED TEMPERATURE CONTROL PANEL AND CLOCK. Henry Dreyfuss, South Pasadena, Calif., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.



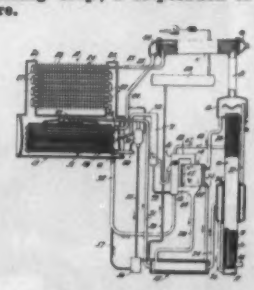
Week of Feb. 11

2,822,672. DISPLAY CASE WITH ADJUSTABLE REFRIGERATED SHELVES. Edgar V. Dickson, Ladue, and Theodore E. Weber, Affton, Mo., assignors to Hussmann Refrigerator Co., St. Louis, Mo.



1. A refrigerated display case comprising an outer cabinet including a base, rear wall, end walls, and a relatively low front wall; inner cabinet means defining a display area and including a bottom panel spaced above said base to provide a refrigeration compartment, a rear panel spaced from said rear wall to provide a rear flue in communication with said refrigeration compartment, and a front panel spaced from said front wall to provide a front flue in communication with refrigeration compartment, said rear and front panels having perforations adjacent to the upper edges thereof. . . .

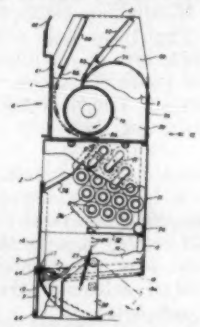
2,822,673. REFRIGERATION. Norton E. Berry, Newburgh, Ind., assignor, by mesne assignments, to Arkla Air Conditioning Corp., a corporation of Delaware.



3. A system adapted for use as an absorption type refrigeration circuit including a generator, a condenser, an evaporator, an absorber, conduits interconnecting said elements for circulation of refrigerant fluid and absorption liquid, certain of said conduits providing fluid flow control for maintaining a pressure differential between the generator and condenser on the high side and the evaporator and absorber on the low side during operation. . . .

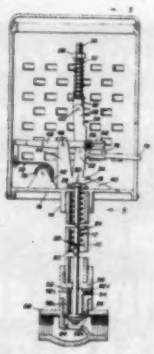
2,822,674. AIR CONDITIONING UNIT. Lance Lovejoy Simmons, Detroit, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp., New York, N. Y.

8. An assembly for an air conditioner comprising a heat exchange unit, a drip pan and a blower; said heat exchange unit including two parallel tube sheets having two right angularly disposed edge portions, a plurality of heat exchange tubes extended between said tube sheets, and passage-forming wall means extending between said tube sheets and at an acute angle to both the aforementioned edge portions, said drip pan including two right angularly disposed wall portions extending between the tube sheets



along the aforementioned edge portions to cooperate with the aforementioned wall means in the directing of air over the heat exchange tubes. . . .

2,822,693. TEMPERATURE REGULATED VALVE CONTROL MECHANISM. Nelson O. W. Mulsow, Carrollton, Texas.



1. A temperature controlled valve actuating device comprising a support member having an opening extending therethrough, a stem reciprocably received in said opening, first and second compressor spring members each

(Concluded on next page)

LARKIN MEANS LOW OPERATING COSTS

FROST-O-TROL® AUTOMATIC HOT GAS DEFROSTER SYSTEM

The purchase price of any product is often misleading, for it precludes the cost of long-run operation. All Larkin products are engineered for the lowest possible operating costs, yet they are priced right. That's why Larkin leads the field for long-run, low-cost operation.

•

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Air Cooled and Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers

LARKIN COILS
319 MEMORIAL DR., S.E. • ATLANTA, GA.

BETTER NOT CALL IT A BIBLE

But the famous Harry Alter *Dependabook* is really the standard buying guide of the trade. It's the most complete refrigeration and air conditioning supply catalog in the whole industry. It is especially designed for your convenience. (Even has your net cost on every item to save time in pricing a job.) For the newest products and latest prices always use the *Dependabook.*

We're Real Specialists in

REFRIGERATION • AIR CONDITIONING • ELECTRIC MOTORS

SUPPLIES and PARTS

SAVE MONEY, time and effort by ordering from our new *Dependabook,* the most complete catalog of all. 160 pages. Over 10,000 items carried in stock. *Wholesale only.* Your orders filled really fast by mail, or picked up at one of six big warehouses.

Write on your letterhead for the 1958 DEFENDABOOK...
Also our monthly Flyer of surplus and close-out Bargains.

The HARRY ALTER CO., Inc. Chicago 16, Ill. 1717 S. Wabash Ave. | New York 13, N. Y. 134 Lafayette St. | Dallas 7, Tex. 122 Parkhouse St. | Atlanta 13, Ga. 690 Stewart Ave., S.W.

FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

MARSH Instruments

THE SERVICEMAN LINE of Testing Gauges, Testing Thermometers, Timers, etc.

PRESSURE GAUGES and Dial Thermometers for all services.

MARSH-ELECTRIMATIC, Water Regulating Valves, Solenoid Valves.

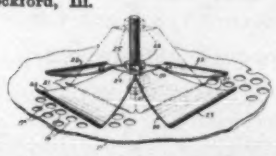
MARSH INSTRUMENT COMPANY
Sales Affiliate of Jos. P. Marsh Corporation
Dept. D, Skokie, Ill.

PATENTS

(Concluded from preceding page)

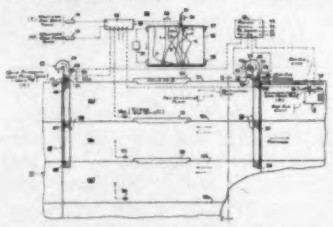
disposed about said stem on opposite sides of said support member, means non-slidably attaching the ends of each of said spring members remote from each of said other to said stem. . . .

2,822,741. AIR DISTRIBUTION OUTLET. Walter W. Kennedy, Rockford, Ill., assignor to Barber-Colman Co., Rockford, Ill.



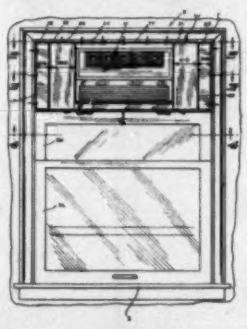
1. An air distribution unit having, in combination, a hollow casing having an inlet at one end and a larger outlet at the other end, a perforated face plate covering said outlet, a deflector smaller than said inlet for intercepting part of the air stream delivered therethrough, said deflector comprising a screw extending through and journaled in said face plate along the axis of the plate. . . .

2,822,743. APPARATUS FOR FORECASTING AND CONTROLLING ATMOSPHERIC CONDITIONS IN STORAGE COMPARTMENTS. Oliver D. Colvin, Seattle, Wash.



1. In an air conditioning system for use in the storage of goods in a storeroom, such as the hold of a ship, where the air of the storeroom and the goods therein are conditioned by means of such air conditioning system, the latter being of the class including storeroom ventilation means for mixing outer air into the storeroom air or replacing such storeroom air entirely by outer air, or recirculation means for recirculating the air of the storeroom therein. . . .

2,822,745. AIR CONDITIONER MOUNTING. Richard E. Frank, Bloomington, and Archer W. Brown, Minneapolis, Minn., assignors to Frank Refrigeration, Inc., Minneapolis, Minn.



1. A mounting for air conditioners which are adapted to be fitted to windows having a window casing thereabout comprising an assemblage of rectangular frames, each including vertical sidewalls and top and bottom walls, said frames set in side by side relationship with their top edges forming a common top-fastening surface and their front facing edges in substantially a common vertical front plane. . . .

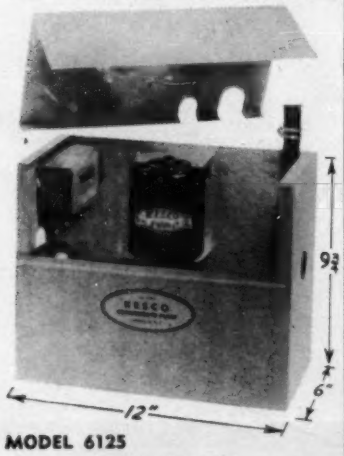
SAVE TIME BUY AT YOUR WHOLESALER

KESCO

EST. 1944

CONDENSATE PUMP

1/30 H.P. to 1/3 H.P. 10 ft. to 50 ft. Head



MODEL 6125

EXCLUSIVE REMOVABLE COVER SPEEDS INSTALLATION AND SERVICE

WHOLESALERS WRITE FOR SAMPLE

KESCO PRODUCTS CORP.

Jamaica 13, N. Y.

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

DESOTO

DeSoto Div.
Chrysler Corp.
Detroit 31, Mich.

The front-end type air conditioner employed on 1957 DeSoto automobiles is the same as that used on 1957 Chrysler cars with the exception of the compressor on early models.

Complete description and service data given previously on the 1957 Chrysler system will therefore apply equally to the 1957 DeSoto unit except for those details applying to the early compressor.

Refrigerant charge is the same as in 1957 Chrysler units —3 lbs. of Refrigerant-12.

Compressor

Compressor used on the early 1957 DeSoto is the Tecumseh HH two-cylinder unit. It is mounted on the right cylinder block and is driven off the car engine through a magnetic clutch. (Later models use the Airtemp 2-cylinder V-type compressor.)

An oil filler plug is provided to check compressor oil level. Oil should be checked after system has operated for about 10 minutes with engine at 1,200 r.p.m., temperature control on "Cold," blower on "High," and toggle switch on "Cooling."

Correct oil level is between 1⅛ and 1⅜ in. as shown on a clean, dry dipstick (such as a ⅛ in. round rod).

DODGE

Dodge Div.
Chrysler Corp.
Detroit 31, Mich.

Front-end type air conditioner employed on 1957 Dodge cars is the same as that used on 1957 Chrysler automobiles except for the compressor on early models and location of the combination receiver-drier unit.

Complete description and service data given previously on the 1957 Chrysler system will therefore apply equally to the 1957 Dodge unit except for those details applying to the early compressor and the receiver location.

Refrigerant charge is the same as in 1957 Chrysler units —3 lbs. of Refrigerant-12.

Compressor

The Tecumseh HH compressor is employed on the early 1957 Dodge system. It is mounted on the right cylinder block and is driven off the car engine through a magnetic clutch. (Later models use the Airtemp 2-cylinder V-type compressor.)

An oil filler plug is provided to check oil level, which should be between ¾ and 1 in. on a dipstick. The check for oil level is made after the system has been operated about 10 minutes with the engine at 1,200 r.p.m., main control on "Cold," blower on "High," toggle switch on "Cooling," and car windows open.

Receiver

The combination receiver and drier unit of the 1957 Dodge system is mounted under the fender on the fender shield.

PLYMOUTH

Plymouth Div.
Chrysler Corp.
Detroit 31, Mich.

Dash-mounted air conditioner employed on 1957 Plymouth cars is the same as that used on 1957 Chrysler automobiles except for the compressor on early models and location of the combination receiver-drier unit.

Complete description and service information given previously on the 1957 Chrysler system will therefore apply also to the 1957 Plymouth unit except for those details applying specifically to the early compressor and the receiver location.

Refrigerant charge is the same as in 1957 Chrysler units —3 lbs. of Refrigerant-12.

Compressor

Compressor employed on early 1957 Plymouth units is the Tecumseh HH model. It is mounted on the car engine and is driven through a magnetic clutch. (The Airtemp 2-cylinder V-type compressor is used on later 1957 Plymouth units.)

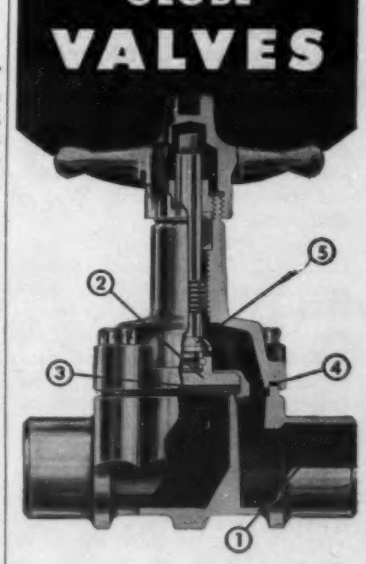
Oil level, which should be between ¾ and 1 in. on a dipstick, can be checked through the oil filler plug of this compressor. Oil check should be made only after system has been operated about 10 minutes with engine speed at 1,200 r.p.m., main control on "Cold," blower on "High," toggle switch on "Cooling," and car windows open.

Receiver

The combination receiver tank and drier of the 1957 Plymouth air conditioning system is located under the fender on the fender shield.

● FULL FLOW
✱ SELF ADJUSTING
● POSITIVE SHUT-OFF
✱ LEAK-LOK BONNET SEAL
● REPACKS IN USE
✱ TEMPERATURE PROOF

KEROTEST
PACKED
GLOBE
VALVES



"Packed" with quality and of rugged brass construction, these valves are ideal for refrigeration and air conditioning systems, oxygen (degreased), nitrogen, compressed air and liquified petroleum gases. Features: 1. Designed for full flow. 2. Floating disc for self-adjustment. 3. Quick seating disc for ease of operation. 4. Leakproof with exclusive gasketing. 5. Repacks under pressure with positive back seating. Maximum operating pressure 500 p.s.i.—maximum temperature 200° F. See your Kerotest wholesaler.

R12 Series ⅞"-2⅛" Forged Brass
R10 Series 2½"-4⅛" Cast Brass

KEROTEST

KEROTEST MANUFACTURING CO.
2502 Liberty Avenue
Pittsburgh 22, Pa.

CLASSIFIED ADVERTISING

RATES for "Positions Wanted" $7.50 per insertion. Limit 50 words. 15¢ per word over 50.

RATES for all other classifications $10.00 per insertion. Limit 50 words. 20¢ per word over 50.

ADVERTISEMENTS set in usual classified style. Box addresses count as five words, other address by actual word count. Please send payment with order.

POSITIONS WANTED

SALES ENGINEER with 10 years' experience in air conditioning, refrigeration, heating. Desires to associate with national manufacturer as field office sales engineer. College graduate, 32 years old. Broadest and most complete qualifications in industry for age. Interested only in position offering opportunity, challenge, and responsibility. Prefer central or east location. BOX A6020, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

SALES ENGINEER wanted at home office for air conditioning and refrigeration application engineering, principally in O.E.M. field. Graduate engineer with previous experience preferred. Send resume and salary requirements to BOHN ALUMINUM & BRASS CORPORATION, Betz Division, 1635 East Voorhees Street, Danville, Illinois, Attention: sales manager. Replies will be held in confidence.

MANUFACTURER'S REPRESENTATIVE for well known line of refrigeration and air conditioning compressors, condensing units to 5-75 tons, package liquid chillers up to 300 tons, and cooling towers 5 to 60 tons. Knowledge of air conditioning necessary—a number of important territories are now available. No objection to heating or other compatible lines. Write fully. BOX A6017, Air Conditioning & Refrigeration News.

EQUIPMENT WANTED

WANTED: MANUFACTURERS surplus, outdated or obsolete refrigeration items—expansion & water & shutoff valves, controls, relays, dehydrators, units, tubing fittings, etc. All sales on a cash close-out basis, large or small quantity. Write or call: COMMERCIAL CONTROLS CO., 257 East 3rd Street, New York 9, N. Y. ORegon 3-7210.

EQUIPMENT FOR SALE

NOTICE: DISTRIBUTORS, dealers, service men, users refrigeration equipment—repair parts available all models Baker ammonia and Freon compressors. We are exclusive Baker export sales office. Manufacturers' export agents refrigeration, air conditioning, and allied equipment. THE KEISER COMPANY, Paul Building, Utica, New York.

FOR SALE—Low temperature Freon 22 system consisting of three Niagara model 660 air units with concentrators and a General Electric 8 cylinder 50 hp 220/440 volt 3 phase 60 cycle condensing unit—Excellent condition reasonably priced. Write or phone, STAR COLD STORAGE CORP., 96 North 6th St., Brooklyn, N. Y., Stagg 2-3900.

WELL KNOWN brand condensing units: Open type (New) ⅓ hp air cooled - less motor $55.00. 1½ hp water cooled - less motor $144.00. 3 hp water cooled - less motor $175.00. FOB Chicago, Illinois. Send for bulletins and catalog on money saving refrigeration values: WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

200 3 h.p. Tecumseh compressors JE-300 F22 brand new late model, 230V single phase complete electrical accessories. 200 3 h.p. Tecumseh Power Packs #A.E.555 goes with above. Manufacturers inventory. BOX A6019, Air Conditioning & Refrigeration News.

EDWARDS **NEW airvec**

The Fanless .. Noiseless .. Air-Cooled Condenser

NO WIRING, NO NOISE, NO OPERATING EXPENSE, NO MOTORS, NO MAINTENANCE.

AIRVEC - a new principle in air conditioning. So new, so revolutionary that all other condenser types are made obsolete. Manufactured in 2, 3, 5, and 7½ ton basic coil sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons. For supermarket installations, units will be circuited for fractional tonnages as required. Head pressure control also available. WRITE AIRVEC DEPT., EDWARDS ENGINEERING CORP. Manufacturers Agents Inquiries Invited.

DEVELOPED BY MANUFACTURERS OF INDUSTRY'S MOST WIDELY USED WATER-COOLED CONDENSERS.

CO-AXIAL FREON CONDENSERS

with these advantages:

- COST REDUCED 30% to 40%
- CONDENSER WATER REDUCED 35%
- Refrigerant Charge Reduced
- Stabilizes Capillary Performance
- Smaller Cooling Towers Required
- Shipping Weight Reduced
- Many Shapes and Sizes Available
- Sea Water Models Available

EDWARDS ENGINEERING CORP.
103 ALEXANDER AVENUE • POMPTON PLAINS, NEW JERSEY

Michigan RACCA--

(Concluded from Page 1, Col. 2)

lock, president of RACCA of Michigan and chairman of the negotiating committee.

It is the first contract, he believes, that expresses refrigeration mechanics' wages as a percentage of the steamfitters rate rather than spelling out a dollar and cents figure.

COVERS 14 AREAS

"This was done," Garlock explained, "because the contract covers 14 separate jurisdiction areas. Because of varying wage rates in different market areas, refrigeration mechanics will be paid 85% of the steamfitters rate, no matter what it might be in a particular area."

Other than this provision, the contract generally follows the national pattern worked out by RACCA and UA headquarters. Joseph O'Toole, national organizer for UA, headed the delegation on the labor side of the table.

The new contract sets the jurisdictional demarcation line at 20 tons of refrigeration for installations. Its provisions apply to all mechanics working on equipment below that size. Servicemen can work on equipment of any size.

REFRIGERATION DIV.

A separate refrigeration division in the union will be set up and journeymen's books will be so marked.

An important provision for the contractors, according to Garlock, is one providing for freedom of movement between the jurisdictional areas covered.

Under the contract, the contractor will be able to send his own serviceman to handle a call on equipment that might be within the territorial jurisdiction of another local. The serviceman can do the work without checking in with the local in that area.

Other provisions in the contract call for an industry-wide promotion fund and a joint union-contractor board to supervise it. Contractors will pay into it four cents an hour for each joruneyman classified as a refrigeration and air conditioning fitter.

TRAINING PROGRAM

An apprenticeship training program for refrigeration mechanics will be established. A generous ratio of apprentices will be permitted to help provide the skilled labor needed in this growing field, Garlock indicated.

Contractors will be permitted to hire one apprentice for the first journeyman and one apprentice for each three journeymen thereafter. Thus a firm hiring four journeymen may have two apprentices.

Florida UA--

(Concluded from Page 1, Col. 4)

299 to 36 against the proposed merger, with 335 out of 415 eligible members voted. UA local 519, comprised of journeymen plumbers, voted 214 to 176 for the merger, but this was not enough to put the proposal through.

ACRA of Florida, Inc. opposed the move, on the basis that the contractor group had spent considerable time and effort in gaining recognition for the special type of journeymen skilled in the type of work required on air conditioning and refrigeration installation.

What the contractors feared from the merger was that these special workers would become submerged in the larger plumbers' local, and that through the vagaries of union practices, they might wind up with men without needed skills.

NEMA Section--

(Concluded from Page 1, Col. 3)

room air conditioners interested in joining the association and affiliating with the new section are invited.

In attendance at the meeting were representatives from the following companies: Kelvinator Div., American Motors Corp.; Fedders-Quigan Corp.; Frigidaire Div., General Motors Corp.; General Electric Co.; Hotpoint Co., Div. of General Electric Co.; Philco Corp.; O. A. Sutton Corp.; Westinghouse Electric Corp.; and Whirlpool Corp.

It was the consensus that formation of the new section would be helpful to the industry, and a major step forward in furthering efforts to improve industry promotions of room and zone air conditioners, according to the announcement.

Member companies of the new section stated that they plan to continue to promote existing industry product standards and B.t.u. rating programs. Statistical and planning committees were appointed, and the association's Statistical Dept. was instructed to start assembling statistical data for the section.

ARI To Continue Room Unit Section

WASHINGTON, D. C.—"The Room Air Conditioner Section of the Air-Conditioning & Refrigeration Institute met April 21, and voted to continue the section and all of its activities, with emphasis on the ratings and standards programs."

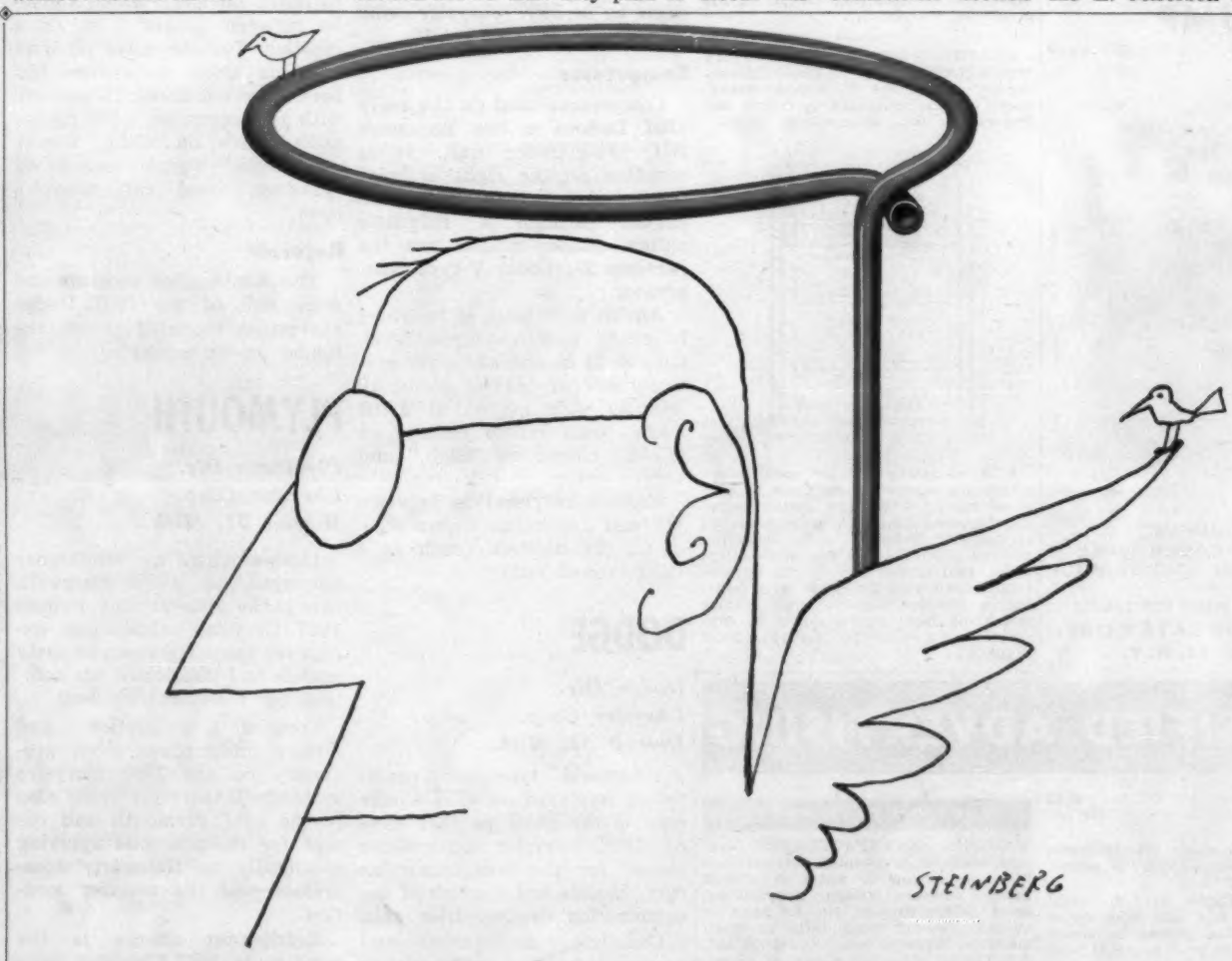
That was the only immediate comment from ARI headquarters on the announcement of the formation of a new NEMA section for room air conditioner manufacturers. The ARI Room Air Conditioner section has for many years embraced most of the manufacturers producing this product, and has had more than 40 members at various times.

A meeting of the Room Air Conditioner Section has been scheduled during the ARI annual meeting which opens May 5 in Hot Springs, Va., it was announced.

Empire Buys Case Co.'s Syracuse Supply Stock

SYRACUSE, N. Y. — Empire Refrigeration Supply Co., Inc. announces it has acquired the refrigeration supplies stock of W. A. Case & Son Mfg. Co. of Syracuse.

Martin J. Roznowski, president, and Raymond J. Wall, treasurer, say this makes Empire the "largest and oldest" refrigeration supply firm in central New York state. Address is 415 E. Jefferson St.



everlasting

How to beat Old Debbil Time . . .

We frustrate Time . . . by forming Lewin-Mathes Seamless Tube and Pipe out of *ageless Copper* . . . heavy-walled and durable . . . smelted to meticulous purity in our own refinery.

We take Time . . . as *integrated specialists*, to test and check and analyze each step in production—from raw material to finished product—to guarantee perfect, *enduring* quality.

We save you Time . . . through a nation-wide network of Service Offices and Mill Depots, linked by Teletype, to assure *on-schedule* deliveries.

The Time *you* take to specify Lewin-Mathes for your Copper Tube and Pipe applications will be to your *everlasting* credit—and satisfaction!

LEWIN MATHES
SAINT LOUIS, MISSOURI
COPPER AND BRASS TUBE PIPE AND ROD
DIVISION OF CERRO DE PASCO CORP.

U.L. & A.S.M.E.
WATER-COOLED
CONDENSERS ¼ TON to 15 TONS
and
LIQUID RECEIVERS
for
EVERY REQUIREMENT
Write for our NEW Catalog
STANDARD
REFRIGERATION CO.
6034 W. North Ave.
Chicago 39, Illinois